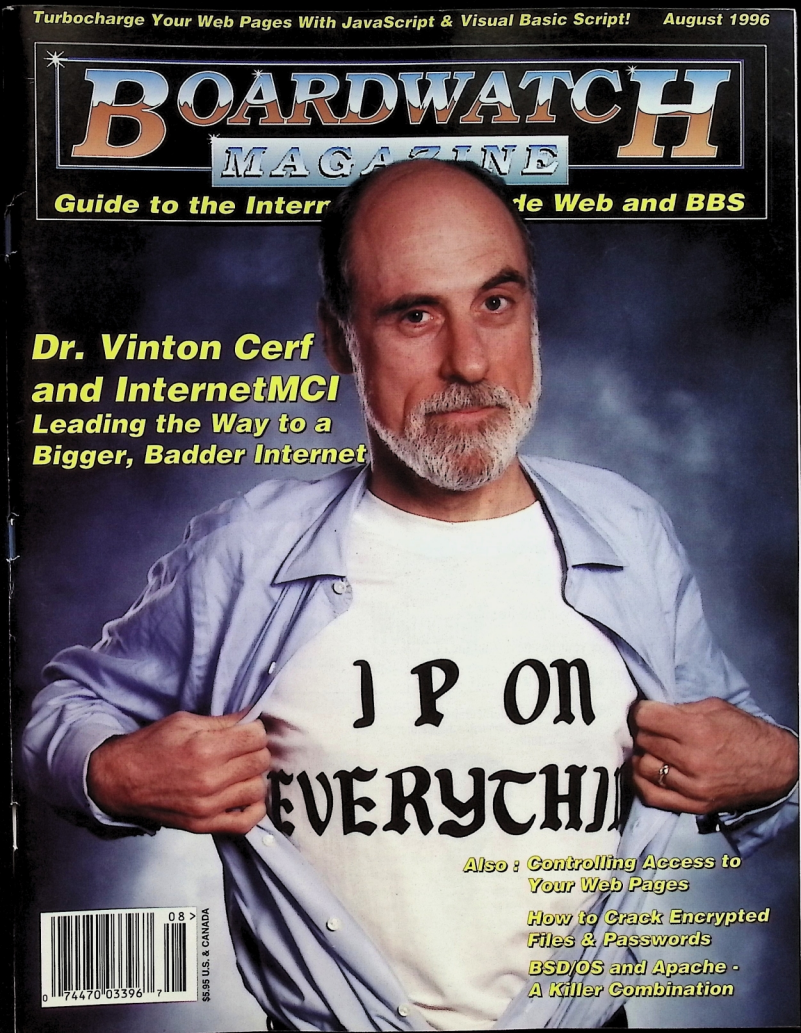
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BOARDWATCH MAGAZINE

Guide to the Interr[illegible]de Web and BBS



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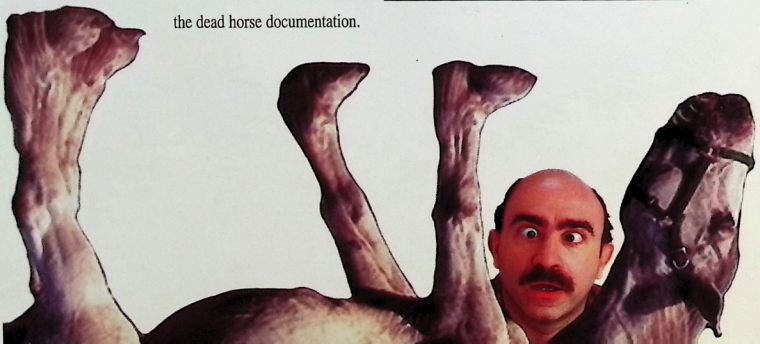
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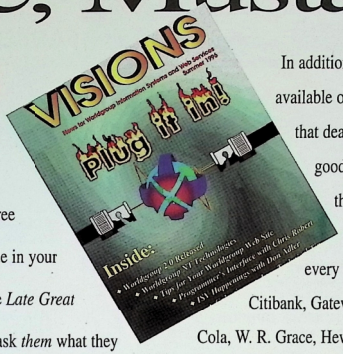
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BOARDWATCH MAGAZINE
Guide to the Internet, World Wide Web and BBS

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AUGUST 1996

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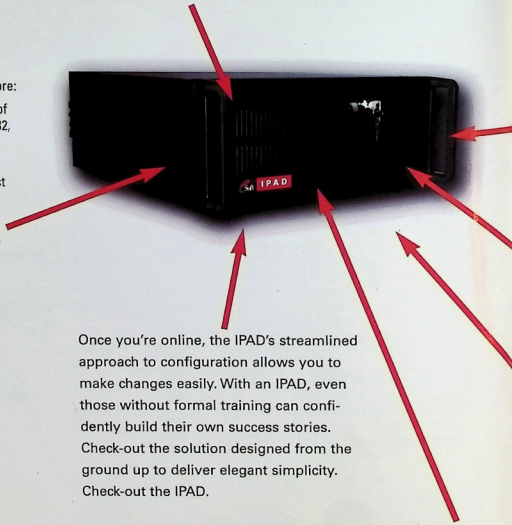
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EDITOR'S NOTES

INTERNET ACCESS AND THE MOMMY TEST

An ongoing theme within these pages is that small Internet Service Providers have a healthy future in spite of the hurricane of predictions of a shakeout in the face of the giants of telecommunications. And the siren song of the mammoth public relations agencies involved is indeed persuasive. Might it be that AT&T and MCI and Sprint will indeed inherit the earth? And with the speed of change in this industry making the once mighty such as Borland, Quarterdeck, and others essentially irrelevant in the course of a weekend, might this all indeed happen by Christmas?

The noise and fury of the network have reached such an intensity that at times I do myself find it all a bit disorienting. With a convention coming in August, and what with the publication of our new Directory of Internet Service Providers, the normal panic of publishing a monthly magazine from an office of less than a dozen in a world of Ziff's and CMP's and IDG's and MOUSE's, and so on ad nauseum, I broke and ran over the fourth of July weekend. I went home to Missouri for some low-tech down time, took a bottle of Crown Royal to my father, and spent four or five days in the warm glow of the childhood home as seen through the rosy fog of the whiskey.

Or at least that was the plan. But the Internet mania has even reached Missouri. The first evidence of this was from my mother who allowed as how she might want to have a bit of that Internet on her computer. There actually are no Internet providers operating in Cape Girardeau that I could locate, although IBM GlobalNet DID have a POP there. She did note that she had been talking with CompuServe and in fact had an account with them. Actually, she had five active accounts with them, but had not actually made the connection despite the fact that the people at CompuServe were VERY nice and had actually spent quite a bit of time with her. They originally had sent the software for Windows95, but she had Windows 3.1, so they then sent the Windows 3.1 version, and so on and so forth. But she had never made a connection and on learning that the connection attempted was by long distance within state to Jefferson City, guaranteed to be the most expensive way of doing it courtesy of Southwestern Bell, I confess I lost interest in the CompuServe strategy.

The computer at hand was reasonably capable, as I had sent it to her myself a couple of years previously. And the SupraFAXmodem was quite operational as well. But it was running Windows 3.1 and I've been running Windows95 for sufficiently long that I confess some loss of brain cells regarding the vagaries of 3.1 - particularly with the WINSOCK gig. But the machine did have the requisite 8 MB of RAM - just no CD-ROM. So I tripped down to the local K-MART and actually DID locate a copy of Windows95 on diskette.

Lest we forget WHY we purchased those CD-ROM drives, I spent a couple of HOURS inserting diskettes between Bombay Gin sips to install this operating system. I just didn't see much point in attempting an Internet connection without it. To my chagrin, when this was completed I found I did not have the Internet add-ons for Microsoft Exchange, they don't come with the diskette version apparently. Having never SEEN the diskette version before, I don't know why I found this surprising. But I did get the dialup networking function sufficiently operational to dial into our system here in Denver and access our network. In this way, I gathered up Microsoft's new Windows Messaging replacement for Microsoft Exchange, and it thankfully does include the Internet service.

And so on blah, blah, blah. After about twelve hours of effort over two days, I managed to bootstrap this computer up to actually do Internet via our dialup ports in Denver, configured e-mail, downloaded a web browser and installed that, and put up a couple of basics such as PointCast network (if you haven't done this from: `www.pointcast.com` - you are truly among the lost). I dealt with the domain name server, the gateway machine IP number, the POP mail server, the POP mail logon and password, and about a dozen other little items necessary to get mom up and operating with the best of them.

Now a couple of things struck me in the process. First, I know everything I need to know from BOTH ends of the connection. I could access my own network, obtain any software my heart desired, and I already more or less know the IP numbers, machine names, etc. by heart. Keep in mind that last November I pretty much wrote the DEFINITIVE article on connecting a Windows95 machine to any PPP account on the Internet, that has been republished by us twice and an article that has had over 200 requests for reprints, permissions for use, etc. issued since November 1995. And as I say, I had intimate knowledge of and total access to EVERYTHING at the Internet Service Provider end as well - particularly fortunate since I was the Internet Provider. Actually I DID still have to call Gary in the middle of the night for one little item. The machine was not totally familiar to me, but little excuse there as Gary and I BUILT the thing less than two years ago.

And it only took about twelve hours of effort and maybe a dozen RESTART WINDOWS NOW operations. And mom is still dialing long distance to get an Internet connection - just at a cheaper rate.

And I wasn't talking her through this over the phone. She was sitting right next to me and did occasionally offer some very valuable advice on how I really should be doing it, but there was no difficulty communicating what needed to be done. First, I was doing it myself. And second, we were both in the same room looking at the same screen. There is no possible way we could have a more ideal situation to get someone connected. And while it was all eminently doable, it struck me that it was, ...well.... hard.

In any event, the weekend was very pleasant and I got to visit a bit with perhaps ten people from my past including close friends, friends of my parents, and indeed a swimming coach from 1971. I didn't recognize him of course at first - without his whistle. Of those, essentially ALL of them spoke in more or less animated fashion about the Internet, and indeed virtually ALL of them had IBM compatible computers - not closet fodder, but more or less operating on a desk somewhere. NONE OF THEM WERE ONLINE - except the swimming coach and he IS an Internet Service Provider up in Chicago now - presumably where he also stores his whistle these days as he designs web pages.

The point is, they all were quite insistent that they were going to be on the Internet in the near future, as soon as they could figure out how to do that.

Now a weekend has just so many hours - even a four day one. And at twelve hours a machine, I quickly calculated that the totally politically correct response to anyone hinting that they might like to be connected to the Internet was that that is terribly interesting, they really should do that, and I really, really, really don't know anything AT ALL about how to do that. This answer served me well though it led to a few puzzled smiles from those who did actually know that I published a directory of Internet Service Providers etc., but they were kind enough, and I was desperate enough, to just let it go.

Which brings us back to ground with two or three perhaps groundless but now reinforced and at this point very strongly held opinions.

First, the number of people ON the Internet at this moment is a statistical anomaly not differentiable from noise compared with the number of people who would LIKE to be on the Internet if someone would just show them how.

Secondly, there apparently is no one to do so. Which implies that the nearly 2500 current Internet Service Providers actually do not comprise a sufficient supply to meet demand, if the ISP's and customers had sufficient access to information about each others existence to find each other.

From my totally unassailable methodology of going home and drinking whiskey with my Dad, we now know that of ten random individuals, one is not only on the Internet, but is designing web pages, and the other nine are going to get on here really quickly and have usually even made some failed attempt with some service or another. These are not randomly conversing people, but people that actually already have personal computers and do in fact use them, albeit in some cases occasionally and albeit at times for such activities as playing solitaire on the computer.

And finally, the task of identifying these people, marketing your service to them, and most onerously, actually accomplishing the configuration and software installation necessary to do useful connections from at times aging and obsolete equipment is not just non-trivial. It is actually hard.

Several years ago, in attempting to deal with a handful (a dozen) Internet Service Providers who did not want anyone else "reselling" their service, I did an editorial about the coming Tsunami of people who wanted to get on the Internet and that their real mission should be not so much finding a way to keep someone else from entering the business as it was to find some high ground quickly. As I predicted, the few dozen grew to several thousand, and the original few dozen could build fairly largish businesses selling to the resellers who then became their best customers instead of their enemies.



I've actually seen the Tsunami ditorial quoted several times as some sort of evidence that I can predict the future and that it actually occurred. Let me say this about that. It hasn't occurred. That was a WAVE guys. The Tsunami is still coming. Picture BIG. Tsunami's are B-I-G waves - very much like waves, and indeed, some would say, wavelike - but larger. They stand about four inches tall at sea and move at 400 mph, which is why they are a bit hard to see ahead of time, and about 220 feet tall when they come ashore, at which point they aren't hard at all to see, in fact everyone can see them very clearly, but at that point they tend to be somewhat difficult to escape and/or survive.

For Internet Service Providers, whose patience and hard work in walking all these people through the upgrade/connection/configuration process, I can only say I admire your stamina and work ethic, and you deserve every success inevitable to your future. At some point, marketing does expand beyond answering the phone, and if you actually did go out and talk to people casually on the street, you would find more market for your product than you dream, although you still can't get them all configured in this lifetime.

And for those predicting an imminent shakeout in the Internet Service Business, and the takeover by large telephone companies and cable television consortiums, I do have one suggestion. You go configure YOUR mommy's computer for an Internet connection, THEN we'll have a conversation on the topic.

Jack Rickard
Editor Rotundus



Letters to the Editor

Boardwatch Magazine
8500 W Bowles Ave Suite 210
Littleton Co 80123

LETTERS TO THE EDITOR

Address correspondence to Letters to the Editor, *Boardwatch Magazine*, 8500 West Bowles Ave., Suite 210, Littleton, CO 80123; by fax to (303)933-2939 or by e-mail to letters@boardwatch.com

BANDWIDTH

Jack,

Like many readers from whom you hear, I'd like to add my kudos for the contribution that you and your magazine make to the online world. I especially salute the unpretentious, straight-talk approach that seems to be a ***Boardwatch*** trademark.

I've been a subscriber for a couple of years now, and although I don't always have the time to read every article, I regret not doing so after reading a piece like "Bandwidth Arithmetic and Mythology" (Editor's Notes, May 1996).

Peppered with just the right touch of humor, sarcasm and indignation at "Ma Bell's" past and present practices, including the antics of her new brood (the "Baby Bells"), it is an entertaining, enjoyable and — most of all — informative must-read for anyone who wants a better idea of what bandwidth means and where it is going.

I've dabbled in computers and a little bit of programming for about a dozen years, cutting my teeth on what I feel were the under-appreciated and much-maligned Commodore 64 and 128, but you and your staff have a real knack for making newbies as well as more experienced users feel at home.

Keep up the good work and don't stop writing or publicly answering letters. It's refreshing to see an editor/publisher take the time to communicate with his readers.

Ed Czerwinski
edwardc@ais.net

Ed:

Thanks for writing. We're trying.

Jack Rickard

◆ ◆ ◆

JIM THOMPSON AND MORE.....

Jack:

Your magazine is still first rate etc.etc.....I was moved to email you after reading Jim Thompson in the June Issue. I found his article fell into the category of "it's about time somebody said that". I applaud his use of the word "Lie". In todays world of suck up and kiss ass politically correct weenie's I have heard terms such as, Misinformation, Disinformation and the over used phrase "that is not totally accurate".

Bravo to Jim for telling it like it is. I have grown sick of listening to so called computer experts explain how much money can be made on the Internet. I am sick of hearing people brag about how many hits they have had.....I have learned that the only people making money on the Web are those selling the hardware and software or the service end of same. Many people I talked to last year were bragging about getting on the net and what a great thing it was going to be. This year they are bitching about what a waste of money it was. There are some who keep telling me that "eventually it will be worth it" yet they pay their web person a hundred or two each month to keep the site updated. I finally cracked a few months back when a friend of mine who has a small mail order business complained that he wished he could be on the Web with his business. I went over to his house and jumped on his computer and whipped up five separate web pages using what he already had on disk. Five pages of product info and sales junk right off his pre-printed sales package. He already had an online Internet account with ten megs of free space for web pages (he wasn't aware the page space was included). We loaded it up tested it out and then registered it with all the main search engines.

Almost all of them responded the next day with confirmations and in a little over 24 hours with the total charge of a six pack and a pizza, my friends little mail order enterprise was on the web. He smiled from ear to ear for at least a week. The hit counter picked upabout 300 hits the first week. He was linked from some other friends pages so he did ok. Last time I spoke with him he had made about ten total sales in about 4 months time. Total profit he tells me has been less than a hundred dollars. Most of the sales have come because he received email generated by the page and then he made telephone calls to sell the product. He is talking about taking the page down. So I explained to him that just being on the web is a small part of a total marketing package. I also reaffirmed my believe that a good product will sell in any medium. A Web presence is not a magic bullet that can improve the product. He told me about all the articles he had read about the web and companies who were getting rich on the web. I handed him the June issue of ***Boardwatch*** and told him to read Jim Thompson. I am hoping he will rediscover the meaning of the word "Lie" . Enough said.

I am glad to see someone talking about how slow the web is. I don't go surfing anymore. The degradation of performance is apparent each month. I think the answer may lie in the satellite technology that is being wasted. The airwaves hold the answer in one form or another. Anyone with a satellite dish (I have one) can tell you about all the empty C-Band channels that are out there. If the Internet could be used as a two way street via these empty channels, things could be down right interesting. There is some pretty good encryption technology already being used on the C-band channels that might be incorporated also. I am familiar with what data is being transferred via satellite now. If this technology could be refined for two way transmission or something similiar, who knows where it would go. The advent of the mini dish systems make it even more interesting. If anybody is working on this please enlighten me. I am pleasantly surprised when I do read something about BBS Systems. Please continue the coverage of BBS technology. One of the few genuine computer related joys I have had in the last few years is working with my Excalibur BBS. I have a hunch that when all this Web hysteria wears off, the really good BBS Systems will benefit from the multitudes looking for something new. Something new indeed. The Internet connected BBS Systems just might be that something new. John Dvorak is a great asset also. Keep up the good work.

Ralph Fraley
JustRalph@aol.com
Columbus Ohio

Ralph:

I would imagine that like always, the truth lies somewhere in the middle. I think there are businesses on the Internet who do profit considerably thereby. And some businesses, no matter how much Internet you apply, are still going to have the same basic problems they always do.

I guess I think the most interesting fellow in that business is Peter of Virtual Vineyard. He sells wine online. He's one of the top authorities in the country on wine, has an extensive list of wines you can order, and a lot of information about the wines online. His server is very competent, and the ordering mechanism a delight to use. I've found them a bit overpriced a few times. In any event, they have been up for a little over a year, do sell a *respectable amount of wine this way, and seem to have learned a lot from the school of hard knocks.*

He's agreed to come to the ONE ISPCON in August and talk a bit about the realities of selling things via Internet. I suspect there are some disappointments and some delights - which would match my own take on the genre.

Jack Rickard

◆ ◆ ◆

DYSLEXIC ABORIGINAL AUSTRALIAN NUNS

I actually know one!

I had to read your editorial on-line as the only issues of ***Boardwatch*** I get are 2 months old when they arrive here and a subscription will cost me about twice as much as purchasing over the counter. (subtle gripe hidden here) But I liked the editorial. I live Karratha in the North-West of Australia. The nearest ISP was 1300 kms away and cost $AU30.00 an hour to access over the POTS. Your readers in the US of A may believe that you pay a lot for ISDN... spare us a thought. To put in a 64k line at about 10% utilisation was going to cost us about $AU50,000 a year BEFORE we purchased any hardware or software. I have run a BBS here for about 18 months which has been the only public access to email for a local call for a community of about 14,000 people. Things though are starting to pick up!

We have enticed a provider in Perth, (Global Data Access `www.ednet.com.au`) who have big plans of providing net access to rural areas in Western Australia, to take a chance with us. We hope to have 200 subscribers by the end of this year and 400 by the end of next. We run an Ascend Max 4000 over a macrolink (bandwidth on demand ISDN 64k - 2M) This weaves its way to another Max and some Suns and a gaggle of other mysterious boxes down in Perth. And it mostly works well!

It is great to read about how things work over your way... In many ways they parallel our experience.

Now... to the point of this letter.

Everyone who takes the path of providing internet access to others, for whatever reason and for whatever bandwidth, needs to be patient and persistent and totally oblivious to all the reasons why it can't be done. We are being told here in Australia that Telstra (THE phone company) is going to buy everyone out and take over all the service provision to make it fair and available to everyone. I think not. They haven't made it terribly easy for others to do, I don't expect they will be able to do it for themselves! All the expertise, hardware, capital and advertising in the world are no substitute for a genuine willingness to make all this stuff work!

Anyhow the sermon is over (occupational hazard, I am a Uniting Church Minister... sort of like your Methodists over there!)

Thanks for your perception, passion and presence.

Geoff Hurst (`geoffh@ednet.com.au`)

Geoff:

I tend to agree on all points. Persistence is always the quality that wins and in fact it is my belief that 95% of winning is being the last to quit and go home.

I've visited Perth twice myself and I actually discussed quite seriously publishing an Australian edition of Boardwatch out of Darwin. It kind of broke down when my prospective partner over there wanted to pay me in sheep. It is horrendously expensive to get a copy of Boardwatch shipped over there. I've been thinking of an actual visit here one of these days.

Thanks for writing - and for reading.

Jack Rickard

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NOTHING OF IMPORTANCE

Jack,

It truly was a pleasure seeing you standing next to the Hummer. I have to admit I am jealous I have not been offered a ride. Rumor has it that the Hummer made it to Cape Girardeau not to long ago and left with some good old airport gumbo between the treads. Did you take it for a spin on the levy since you were so close? You think we could have had some fun in that thing back in 73?

I have been meaning to write for some time both to thank you for sending me your magazine and to actually try to get my name in it. I'm not sure which I wanted to do the most. I have really enjoyed receiving ***Boardwatch*** over the years and have actually reached a point where I can occasionally understand an article or two. Actually my favorite part has become the letters to the Editor section along with the Editor's notes. I usually have to read a few of your comments to Deb who has always enjoyed you and your writings. She sends her greetings as well.

I do have to say that I really enjoyed the article written last month by Jim Thompson concerning the internet. He said some things I have thought all along but just didn't think it was computer cool to say. The Internet is indeed very slow, at least on my machine which granted is not the fastest around. I have had a difficult time figuring out just what the allure is to this whole thing. I guess if you have an extra 8 to 10 hours a day it would be kind of fun to "surf the net". How's that for some computer lingo. I had a coworker tell me the other day that she discovered how to get a copy of a Missouri Senate Bill over the Internet. She was so excited about this amazing opportunity and didn't think anything about it taking two hours to find it, call it up and print it. While she was sitting in my office I called the local Senator and had a faxed copy sitting on my desk within 10 minutes. Not quite as cool a method as hers but a bit more time efficient.

I am presently serving on the school board (along with a fellow you might remember as having a fondness for cheeseburgers) of a little elementary school that launched you to magazine stardom. We are adding many computers for the coming school year and everybody is giddy about little Johnny hooking up to the internet. I don't think there is any doubt that if little Johnny is given 3 to 4 hours to play around with the Internet each day he will be a Harvard candidate. If I could have just had the opportunity to sit at a computer for 15 minutes waiting for an image to appear think of where I might be today.

That being said I do think the Internet offers much opportunity and is indeed an exciting concept. It just has to be tempered with a dose of reality which I thought Jim Thompson did quite well.

Thanks very much for sending me Boardwatch. I look forward to receiving it each month and I have learned quite a bit by reading it. I had no idea a Hummer cost that much.

Sincerely,

Steve Unterreiner
Cape Girardeau, Missouri
`GQCD79A@prodigy.com`

Steve:

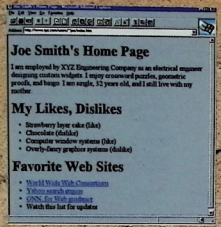
Good to hear from you. Yes, it is a Hummer. No they don't give them away and indeed they seem inordinately proud of them. if you ask me. And last Thanksgiving I did indeed get it stuck up to the roof very nearly in some very nice Missouri gumbo - actually down at the infamous levee as it so happens. But it has a 12,000 pound winch on the front so I tied it to a railroad track and winched it out rather smoothly I thought. I understand they will finally have the track straightened back up and repaired sometime this summer and will be resuming rail service to Kennet, Sikeston, Benton, New Madrid,and Poplar Bluff so I guess no harm done eh?

As I recall, a 64 Chevy pickup, a handy six pack of Annheuser Bush short trees, and a guitar were all that was required for fun in '73. I can't imagine improving on that much with a Hummer. But it does seem it's a lot harder to have fun in 1996 and maybe some rolling iron will help - or so went my thinking. And I'm not as young and pretty as I might have once been.

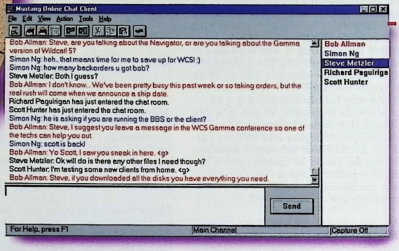
All that you say about the Internet is true-- and then some. As you know, I have been enthusiastic about this area for many years. But it is what it is, and it is true that the hype at this point has vastly overrun the reality. I still think e-mail is the most important application. You can write when you get time. I can respond when I get time. And it costs pennies. You don't have to deal with stamps and envelopes and stationary. And it only costs about $3000 for the computer and assorted paraphernalia to do it. I do love it. And I'm still convinced that some day, if we can get enough of the population using it, suffocating billions in resource behind it, and enough simple human desire to make it work - it will work - at least once in a row for maybe an afternoon.

Very pleased to hear you and the Cheese are making sure the old alma mater is in good hands. And you're quite correct that it makes no sense to have kids spending their time on the Internet when they could be in the cafeteria closet guzzling the old sacramental wine, eh? I recall you at least made the most of every educational minute offered but some of the rest of us were...er..."remiss in maximizing our educational opportunities." I rest easy knowing that the education of our future gen-

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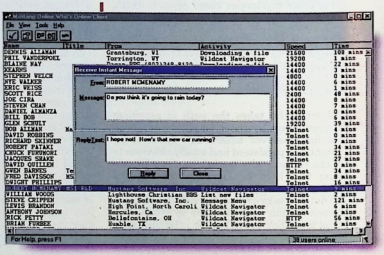
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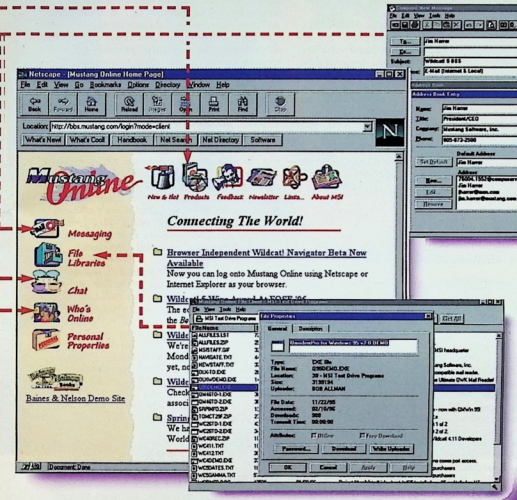
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erations is in the steady, wise, and scholarly hands of yourself and a guy who went through high school with the unlikely nickname of "CHEESEBURGER."

In any event, it's good to hear from you. My very best to Deb and all the more vertically challenged Unterreiners. You're one of the very few friends in my life who have married to suit me. Thanks.

Jack Rickard

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GURU ISPCON KNOWLEDGE

Greetings Jack, I have followed your magazine for several years while I was running a BBS, and made the change to a small rural ISPwith about forty subscribers in March 95 and are currently listed in your directory of ISP's "CybaLink Internet Services". I come to you today to congratulate you on a great magazine and to ask you to share some of your great knowledge on what it takes to make a successful convention.

I live in Southern Illinois and attend Southern Illinois University while running the ISP business for extra income and experience and have yet to go to one of your ISPCON's due to they are scheduled right on the opening week of the fall semester of classes. I am about 30 minutes away from the college in a small town called Du Quoin were the home of the Illinois State Fair facility resides, a place were many people could gather and enjoy themselves, here take a look at the place at "**http://www.intrnet.net/~sitc/duquoin2.html#Sites**"

I would like to plant the seed of opportunity and replace one of the flea market shows that are housed inside a huge expedition building with a Southern Illinois computer related expo that would allow anyone related in our industry to get together and show off their stuff and network with each other. This would aid in our ever declining coal industry and possibly lay down opportunity for organizations and business looking to re-locate in the heartland of Southern Illinois.

So what does it take to make a successful gathering of computer related lemmings? I know you must be a very busy person but any pointers from you would be worth its weight in gold. I hope you can print this in your "Letters To The Editor" column so that anyone with knowledge or interest of the gathering could contact me at —>

sysop@gw.cybalink.com
CybaLink Internet Services
attn: Shane Bishop
501 S. Washington Street
Du Quoin, IL 62832

Shane:

I was raised across the river in Cape Girardeau Missouri. I used to travel to SIU regularly to attend various "Rock" concerts. I guess that was a long time ago. It had nothing to do with geology.

ONE ISPCON is August 7-10 this year. This is the first week of class at SIU?? You guys start early. In fact, we moved it up a bit this year - we have in the past always been about the 20th of the month.

I would urge you to attend to see what one is like. There are a LOT of trade shows out there and most of them uniformly bad. There are a million details to putting together a show with some excitement and enthusiasm on the floor. We do it better than most. I doubt a brief e-mail can cover it. But we started by preventing most of the things I personally detest about most shows - acres of white round tables, people gliding furtively from session to session wondering if they should be there, etc.

The overall concept is to have a MEETING, not a show. We do a show-and-tell type of event where we gather a couple hundred of the movers and shakers in the industry, and give them all an opportunity to get up and tell what they do, how they do it, and why they do it. To the degree we make them feel secure and well loved, they let down their hair a bit and tell a lot of things they wouldn't generally let anyone know. And so everyone who attends winds up getting information they can't buy anyplace at all - from people who have done it. I guess that's the "formula" if there is one.

Jack Rickard

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INVASION OF THE MORONS

Hello Mr. Rickard

I am writing this because of what one of your readers said about the people who use AOL. The readers name is Ira Weissman. Ira said "Even though your publication is too straightforward and logical for the average AOL moron, they would still wait for the next issue..." Since AOL has a membership around 6 million, I would have to assume that a good portion of those members are average Americans. As such, they probably never used a computer until recently. I think Ira should get used to the morons because software, hardware, online service, telephone, local ISP and national ISP companies are trying to get as many average Americans as possible onto the Net. Boardwatch is helping too. I read a book about Unix that had a philosophy the Net users should use. The experienced should teach the inexperienced. Maybe that is why there is so many books about the Net.

Boardwatch is a great magazine. Maybe Ira should go teach AOL morons how to read it. I probably will not see if this email gets a reply but I wanted to put my two cents worth in. I look forward to seeing Boardwatch on the newsstand for many years to come.

Bret Cline
bacline@gate.net

Bret:

Underlying your message is the implication that if there are six million of them, they can't be morons. Statistically and empirically I think we can demonstrate this is not necessarily so. Morons actually TEND to congregate into vast quantities much after the fashion of mosquitoes.

And frankly, I'm none too encouraged by the concept of average Americans. I recently read an article about a survey of 2030 Americans. When asked whether the earth traveled around the sun in 1. One day, 2. One month, or 3. One year; nearly 48% got it right. Since 33% could have hit this multiple choicer by accident, I found the whole article rather depressing.

That said, I doubt there is any statistical deviation on AOL over anywhere else, or even anywhere else online. There is a small group of people who discovered the Internet rather early - typically in the late 1980's but still early by some measure. They wanted everyone to get on the Internet so they would be seen as "important" and pioneering. A tremendous influx of new people did come on the Internet. But guess what? They didn't care about the early hands and they didn't properly acknowledge their earliness or their pioneering. This has caused enormous unvoiced bitterness and frustration. And so they tend to deride anyone new as a moron or a newbie.

The real pioneers were dedicated to a concept of universal non-centralized connectivity that did have a very strong ethos regarding helping the new guy get connected. They are still out there. They just don't make as much noise. And some of them have literally devoted their adult lives to this concept. They don't get much credit either, but that wasn't what they were in it for in the first place. To this day, if you take them out of it, the Internet would not remain functional for a full afternoon.

I have been critical of Steve Case and AOL as an organization and as an online service - vocally and publicly so. But AOLians themselves are generally people who came online and are very much a part of it. They vary enormously in all aspects, much as the entire online population varies enormously. The entire clique devoted to beating up those on AOL tell more about themselves than they do the AOLians. And I'm not sympathetic to these who participate in a kind of online racism based on your specific type of connection. It's...well...moronic.

Jack Rickard

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NEW SUBSCRIBER

I discovered your magazine only because one of my web pages was cited in Durant Omboden's column in the June issue (although the URL was out-of-date), and readers alerted me by e-mail or though my guestbook. It was not easy to find a 'hard' copy of Boardwatch where I live, but I finally succeeded. And what I found is certainly the best magazine of its kind on the market. I have succumbed to one-year subscriptions to other Internet magazines, only to find them largely trivial and not worth the money. One issue of Boardwatch, however, prompted me to fire off my initial two-year subscription, so I am eagerly awaiting what July has in store.

D. L. Gates, PhD,
dlgates@neosoft.com
Webmaster, The United Kingdom Pages
http://www.neosoft.com/~dlgates/uk

Dr. Gates:

We're pleased to have you as a subscriber, and hope you found the July issue similarly use-

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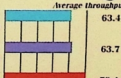
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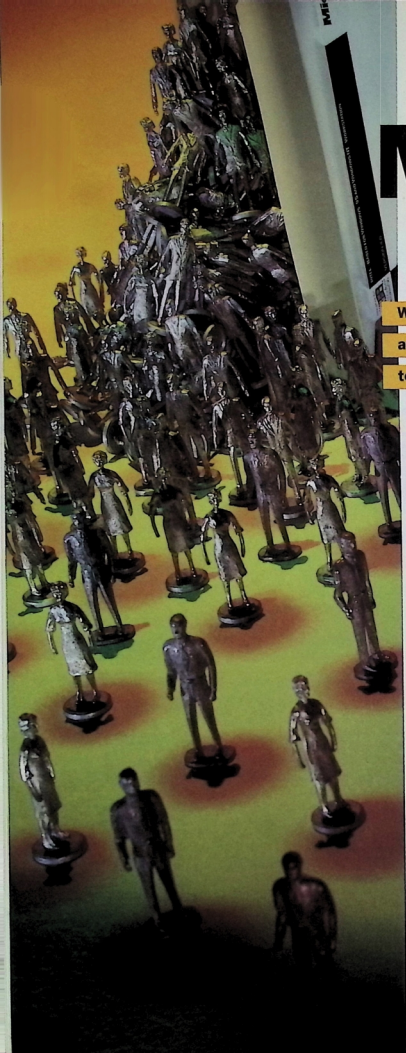
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ful. Yes, there are a lot of Internet magazines out there. And yes, most are horrid. There are a few good ones. We're a bit underdistributed, and the current climate of papering the walls with Internet magazines is largely why. As the fad passes, and reality resumes in this niche, we'll expand distribution again.

Jack Rickard

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BSD

Hi Jack...great mag.. I love it...

I've been running BSD for about 3 months now. It's been fast and reliable. Any plans to review BSD?

Thanks..

Jerry Scrogin
Bayou Internet
jerry@bayou.com
www.bayou.com

Jerry:

*We have a BSD machine up and running here at **Boardwatch**. A review is certainly not out of the question. More to our style would be something on the order of FIVE USEFUL BSD TRICKS AND THE OPERATORS WHO LOVE THEM. But we'll look at it.*

Jack Rickard

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LINUX

Jack,

Nice Magazine ! I've subscribed for a couple of years, etc, etc. Your web page looks nice, but I find the WWW a little slow at !

Your staff started to put Linux on a box, but as far as I can tell, never finished. The last I have heard, you could not get a working kernel going. Now I know your a MS fan, and to each his own, but I'm wondering if you might try a different linux distribution than the one you currently have ? Maybe RedHat might be easier ? I have found that Linux has brought back the "fun" and "excitement" to my PC.

Will we see more articles covering Linux in the future ?

Jerry Harvey

Likely Jerry. I don't know that it's a priority but if enough readers have an interest and we can find someone gifted at writing about it, we'll do it. We never had any problem getting a kernel up under Linux at Boardwatch. What you may have heard was a comment I made when we had a columnist who had run three columns and still didn't have a kernel up in the article - still going on and on about installation from the CD-ROM and all the various options. This has to do with conciseness of presentation and writing style - not operating systems. Rather of the fashion that if you can't get the kernel up and operating in less than three serial columns, we don't have much of a column going here.

So our Linux column died from my dissatisfaction with the writing - not with Linux. If we can't do it well, let's don't do it.

Jack Rickard

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<SIGH> MISOGYNY AGAIN?

Jack:

First, let me say I enjoy your editorials each month. Often, they're the most content dense part of the magazine. I've learned a lot from them. I also enjoy Doug Shaker's Mothra columns, and second Mark Stone's letter (June '96).

I'm (at least) a month behind on my reading, so here I am looking at BW May '96. And, here's the (seemingly) monthly Battle Of The Sexes being played out in the letters section, again.

< Sigh ... > Dale Edmonds' was about the best I've seen on this subject so far, bet even she doesn't get it right. Why is everyone fighting about this being a male - female thing? The answer to the whole thing isn't eliminating the planet of EITHER Feminazis OR sexist Male Pigs (and no Jack, I'm not suggesting you are one).

The answer to it all is for us to see each other as the individuals we are. There aren't Girrrll subjects and Guuuuyy subjects. There's just subjects, and pretty well all of them are appropriate to anyone at all; anyone who's interested in them and can, and want to, keep up with them.

I like Japanese flower arranging. I stir fry a mean Szechuan jumbo shrimp dish. I'm bored to tears by most professional sports, though I enjoy going to PCL baseball games. I'm ecstatic over the new coffee pot I bought yesterday, and I've finally found a place in Computer Shopper magazine that's offering all three of a Buslogic ISA SCSI card, a one gig hard drive, and the Conner one gig SCSI tape drive I want to buy and can afford.

I don't wear any makeup, jewelry, or ties. I sometimes think I'm one of the fifty or so individuals left on the planet who can still spell. I take pride in the fact that when my mother was re-entering the workforce after her marriage broke up, I helped her re-learn her decades old stenographic skills.

Boardwatch, as reading material goes, is fluff in comparison to the rest of my reading list. No offense meant, but I've also got "A Jump Start Course in C++ Programming" on the go, Schneier's "Applied Cryptography", Clifford Stoll's "Silicon Snake Oil", "No Contest" by Alfie Cohn, Scientific American, Backpacker, and Skeptical Enquirer. And Umberto Eco's "Foucault's Pendulum," and a book of Tennyson poems, and Hugh Maclennan's "Two Solitudes", and a couple of Oriental cookbooks.

What does any of that have to do with being either male or female? Nothing!

I've been signing my snail and email with "S. Keeling" for years, and I've not been harassed yet. One of my heros, Chuck Yeager, would probably be pretty offended by that "Bubba Smith" characterization of yours.

Can't we all just deep six the character assassination (sexual orientation, gender, racial, national, religious, etc.) and start treating each other as the individuals we are? All that crap is absolutely irrelevant unless you're a Sociology major (and they'll be answerable to history for their crimes!). Sure, there's going to be a few dinosaurs around dragging all the old attitudes around with them, but that's their problem.

I think 'Gays' are essentially twisted, but harmless, and they can be a lot of fun to be around. I think it's appalling that real Crackers (or Nazis and devil worshippers) are in this day and age running around burning predominantly black churches. Considering what I think of religion, I think that's discrimination against white churches. But so what? We all have our weird ideas. We can still treat each other as individuals, not members of some hypothetical competing clan. We've got to get over these superficial labeling systems.

Dale, it is NOT harder to get the same respect for your abilities as a female with computers. You got my respect easily. If you're unable to get that respect from others, just write it off as something that's wrong with them. Next!

And Jack, who cares what anthropological baggage some people are dragging around with them that was more appropriate to the Pleistocene? That's their problem. Move on.

And, lastly Jack, as for the cover, no I will not be assimilated. My ISP is only vaguely aware of alternatives to Win95, NT, and OS/2, yet I've still managed to get this message to you without the use of any of the above. As soon as I get my SCSI drive and tape drive, I can upgrade to the latest version of Linux and keep on going, without any help (?!?) from (c)Bill. I disapprove of Microsoft for it's penchant to want to supplant, instead of interoperate, but it's no skin off my nose. The rest of you can continue your headlong dash towards that cliff without me. You appear to think that such a tradeoff is a petty concern. No problemo.

I suspect that by the time (c)Bill and the crew have managed to make it impossible to use anything but (c)Bill's software to access the net, those who can will have long since departed for some form of BlackNet or UnderNet where no such restrictions will apply.

To finish off this unapologetically pro-individuality and Open Systems rant, perhaps you'll get a kick out of the following. Enjoy!

skeeling@mts.net

S;

I couldn't agree more. I'm with you on everything you've said here. And that doesn't leave me much to say about it. The wars are a lot more fun.

Oh, but yeah, ...you WILL be assimilated...

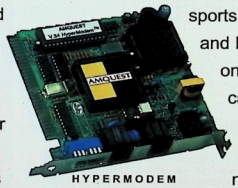
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The following was forwarded by **skeeling@mts.net**

There was a knock on the door. It was the man from Microsoft.

"Not you again," I said.

"Sorry," he said, a little sheepishly. "I guess you know why I'm here."

Indeed I did. Microsoft's $300 million campaign to promote the Windows95 operating system was meant to be universally effective, to convince every human being on the planet that Windows 95 was an essential, some would say integral, part of living. Problem was,not everyone had bought it. Specifically, I hadn't bought it. I was the Last Human Being Without Windows 95. And now this little man from Microsoft was at my door, and he wouldn't take no for an answer.

"No," I said.

"You know I can't take that," he said, pulling out a copy of Windows95 from a briefcase. "Come on. Just one copy. That's all we ask."

"Not interested," I said. "Look, isn't there someone else you can go bother for a while? There's got to be someone else on the planet who doesn't have a copy."

"Well, no," The Microsoft man said. "You're the only one."

"You can't be serious. Not everyone on the planet has a computer," I said. "Hell, not everyone on the planet has a PC! Some people own Macintoshes, which run their own operating system. And some people who have PCs run OS/2, though I hear that's just a rumor. In short, there are some people who just have no use for Windows 95."

The Microsoft man look perplexed. "I'm missing your point," he said.

"Use!" I screamed. "Use! Use! Use! Why BUY it, if you can't USE it?"
"Well, I don't know anything about this 'use' thing you're going on about," The Microsoft man said. "All I know is that according to our records, everyone else on the planet has a copy."

"People without computers?"

"Got 'em."

"Amazonian Indians?"

"We had to get some malaria shots to go in, but yes."

"The Amish."

"Check."

"Oh, come on," I said. "They don't even wear BUTTONS. How did you get them to buy a computer operating system?"

"We told them there were actually 95 very small windows in the box," the Microsoft man admitted. "We sort of lied. Which means we are all going to Hell, every single employee of Microsoft." He was somber for a minute, but then perked right up. "But that's not the point!" he said. "The point is, EVERYONE has a copy. Except you."
"So what?" I said. "If everyone else jumped off a cliff, would you expect me to do it, too?"

"If we spent $300 million advertising it?

Absolutely."

"No."

"Jeez, back to that again," the Microsoft man said.

"Hey. I'll tell you what. I'll GIVE you a copy. For free. Just take it and install it on your computer." He waved the box in front of me.

"No," I said again. "No offense, pal. But I don't need it. And frankly, your whole advertising blitz has sort of offended me. I mean,
it's a computer operating system! Great. Fine. Swell. Whatever. But you guys are advertising it like it creates world peace or something."

"It did."

"Pardon?"

"World peace. It was part of the original design. Really. One button access. Click on it, poof, end to strife and hunger. Simple."

"So what happened?"

"Well, you know," he said. "It took up a lot of space on the hard drive. We had to decide between it or the Microsoft Network. Anyway, we couldn't figure out how to make a profit off of world peace."

"Go away," I said.

"I can't," he said. "I'll be killed if I fail."

"You have got to be kidding," I said.

"Look," the Microsoft man said, "We sold this to the AMISH. The Amish! Right now, they're opening the boxes and figuring out they've been had. We'll be pitchforked if we ever step into Western Pennsyvania again. But we did it. So to have YOU holding out, well, it's embarrassing. It's embarrassing to the company. It's embarrassing to the product. It's embarrassing to BILL."

"Bill Gates does not care about me," I said.

"He's watching right now," the Microsoft man said. "Borrowed one of those military spy satellites just for the purpose. It's also got one of those high-powered lasers. You close that door on me, zap, I'm a pile of gray ash."

"He wouldn't do that," I said, "He might hit that copy of Windows 95 by accident."

"Oh, Bill's gotten pretty good with that laser," the Microsoft man said, nervously. "Okay. I wasn't supposed to do this, but you leave me no choice. If you take this copy of Windows 95, we will reward you handsomely. In fact, we'll give you your own Caribbean island! How does Montserrat sound?"

"Terrible. There's an active volcano there."

"It's only a small one," the Microsoft man said.

"Look," I said, "even if you DID convince me to take that copy of Windows 95, what would you do then? You'd have totally saturated the market. That would be it. No new worlds to conquer. What would you do then?"

The Microsoft man held up another box and gave it to me.

"Windows 95....For Pets'?!?!?"

"There's a LOT of domestic animals out there," he said.

I shut the door quickly. There was a surprised yelp, the sound of a laser, and then nothing.

FTP SEARCH

<Insert favorite suck-up comment here>

I've found an intresting search engine you may want to share with your readers.

http://ftpsearch.unit.no/

It allows you to quickly search FTP sites for files or directories or both. I've found it useful to find new versions of programs, with a simple keyword you can find almost any file you may be looking for.

Jeff De Jager
dejager@supernet.ab.ca

Jeff:

Cool.

Jack

SPAM; SHAME ON YOU CHRIS BABB!

I accompanied the Inspector General to a remote B-24 bomber base on the west coast of Ecuador, opposite the Galapogas Islands; enroute, as we were, to a newly-formed task force guarding a British-Canadian oil refinery in Peru. As we passed through, it was our pleasure to award a medal to the mess sergeant who gallantly above and beyond the call of duty so disguised a shipload of nothing but SPAM to feed the personnel, until logistics would catch up, that the men and officers were elated, never once suspecting they were eating morning, noon, and night the same meat product. Your "experiment" is hardly worth the picture you present. SPAM keeps indefinitely, unopened. Like any biological food, once exposed to the air it will decompose. You should visit your local super market and buy a can for your next camping trip. Problem is, you have a pre-formed, warped mentality about something as common to the GIs as C-rations or K-rations. When you're a long, long way from home and without all its niceties, a compressed meat product is better by far than what you have alluded to in your article.

Jack Rickard, this guy's never even eaten SPAM! How come you let him write about it? And in ***Boardwatch***?

Provri@aol.com

SpamMan:

I don't know. It seemed like a good idea at the time. Now we've incensed the SPAMites?

Chris - can it on the SPAM. Maybe we can get Dvorak to do a Romantic Candlelight SPAM Dinner for Two article in his recipe column to make it up to SpamMan?

Jack Rickard

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ISP IN REMOTE & ISOLATED PATAGONIA

Jack,

I've been reading ***Boardwatch*** for the last year and it has been most enlightening to me. We (myself and partners) are up to providing Internet service in this remote and isolated small town in Patagonia where we live.

Internet.

The Web is fine if you just want to display your home page.
But what good is telling the world about yourself if the world can't talk back?
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Great On Windows 95

Though your mag has provided a lot of useful information, and so have the letters to the editor, I still don't have the complete picture of all we need.

We are going to provide this service through dial-up with 12-16 modems.We need to know who is calling and how long they are on line.

I am presently talking to Don Gardner of eSoft for their IPAD, which I understand would provide the necessary connections.

Our town has never had a BBS. I think that we need to build a BBS in which locals can communicate with each other and find most of the information and entertainment (why not?) they need. But, due to the development and widespread that the Internet has achieved by now it is a need to have Internet connectivity.

My vision is that users would spent most of their time on-line on the local BBS and then access the Internet only for specific needs (e-mail, search information on a Web, etc.). It would be wonderful if they could do it from within the BBS.

You must note that we still have very expensive access to the Internet here.

I myself, to send you this e-mail, have to dial-up through a VERY LONG distance call which costs $1.72 . That is just for the Telco not the ISP (no, Jack, you guessed wrong. That's not for an hour but for a minute).

Of course, we do not intend to provide our service through this same way but, then, we can cut this cost down to nearly a fifth, but that is not precisely cheap either. Our hope is that with time and deregulation things will change.

Though there are a lot of different examples through your magazine I don't think any adjusts exactly to our needs. How would you configure our system?

Bear in mind that we need to get everything because if we are missing a connector or a cable or a piece of software it is not possible to get it here.

Most users down here will have Windows PCs and some even run DOS. I don't think there is one Unix box in town. I tell you this in order to let you know the "culture" here. I run Win 95 on a 486 DX4 100 Mhz with 8 MB RAM and I am waiting for a hardware upgrade, Pentium with 32 MB, to get NT. But that will be with release 4.0, probably.

It's been a blessing to us to find a magazine like your's, which not only informs us technically but mainly shows us where the world is going. I mostly agree with your points of view and like the colloquial tone.

Thanks for any help you can give. We will continue to be with you from Patagonia. My subscription card is in the mail already.

Regards,

Carlos Casares
CharCas@interarg.com.ar
Voice/Fax 54 945 2157
Av. Ameghino 1690
9200 Esquel, Chubut
Argentina

Carlos:

I would guess that given the cost of the connection, you should be looking at a dial-up BBS package that will do UUCP mail connections. UUCP is the Unix to Unix Copy Program. It is designed to pass mail in a batch process using the UUCPg protocol. There are still some Internet Service Providers such as Holonet and Netcom that quietly offer the old fashioned dialup UUCP account. Your BBS then serves callers by allowing them to dial in and receive and respond to their e-mail on your local board. Then once or twice per day, your BBS makes a single call out to an Internet Service Provider, and swaps mail in an automated and hopefully brief mail session. You receive any inbound Internet mail, and drop off any outbound Internet mail. This was quite the way bulletin boards handled mail here in the states just a few years ago. And it is still the way to do it most efficiently. I'm not in a position to make an unbiased recommendation for specific software in this area. I wrote the UUCP g protocol implementation used in eSoft's TBBS package several years ago. It's the only UUCP I know of written entirely in assembly language.

At this point, nearly all BBS software has a UUCP add-on product, but you'll almost never see them advertised any longer. But much of the world outside the United States still uses UUCP to pass mail. It's very economical.

I would do this first in your area, and work into more expansive Internet connectivity a step at a time as demand in your area dictates.

Perhaps some of our other readers could e-mail you with more detailed advice.

Jack Rickard

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PICKIN' AT JACK'S BRAIN

Hello there Jack,

To start things off, I would like to say something that you have never heard before... This is a true Tom McDonald original; I like your magazine! We have two subscriptions that come to the office and could use another but, well, you have to draw the line somewhere.

Anyways, I have a question for you that I have not been able to get answered by anyone thus far. We're talking hours of research on the Net, newsgroup postings and magazine ads.(so don't feel bad if you don't have an answer for me)
I am looking for true POP Mail server software. Something that allows users to define their own login and password for specific addresses off of their own domain. Currently, **everything@theirdomain.com** goes to one mailbox. We'd like to allow the user to define specific addresses and set permissions on their own. Do you know what I mean?

Any help on this subject would be greatly appreciated.

Tom McDonald
tom@smartlink.net
http://www.smartlink.net/
p.s. did I mention how much I like your magazine?

Tom:

I don't think I can help. And I am loathe to tell you that you're asking the wrong question because I am annoyed when people do that to me. I will say that configuring mail is a bit of an art and requires work at the ISP end, or the location of the SMTP mail server and POP3 server, as well as at the customer end. Almost anything you want to do can be done, but often with a slight twist.

*I would refer you to O'Reilly and Associates excellent book on configuring SENDMAIL. See **http://www.ora.com**.*

*You might also look for a powerful shareware mail program titled PEGASUS MAIL. It can do some pretty amazing things and it is essentially free - **http://www.pegasus.usa.com/** Ultimately, it is not a bad idea to have all mail to a specific domain routed to one mailbox. This is so one organization can make a single call and retrieve all mail for the organization. They then parse the mail out to everyone in their organization. Something like PEGASUS MAIL can actually be used for this. On the other end of the spectrum, Microsoft Exchange Server can too. There are a lot of options on that end.*

If avoiding all that is the goal, most ISPs offer business connections with a set of POP mail boxes. They might perhaps offer 20 POP accounts with the monthly fee with additional POP mailboxes at some nominal per box fee ($5 per month or so). But each is configured by the ISP.

I know of no software that allows the customers to dial into the ISP and do the POP configuration themselves.

We'll publish your letter. Someone may see it and contact you with just the stuff, or decide to develop such a product, or not. Good luck with it.

Jack Rickard

p.s. You did, but I can never hear it enough.

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BREAKER, BREAKER, GOOD BUDDY

I am responding to the column by Jim Thompson which appeared in ***Boardwatch***, June 1996 edition.

In a nutshell I thought just about everything he said about the web and Internet is either a lot of crap, or true but irrelevant. And I imagine BW is getting a lot of flack to that effect and so I won't elaborate except to point out that the Internet is a communications medium that will

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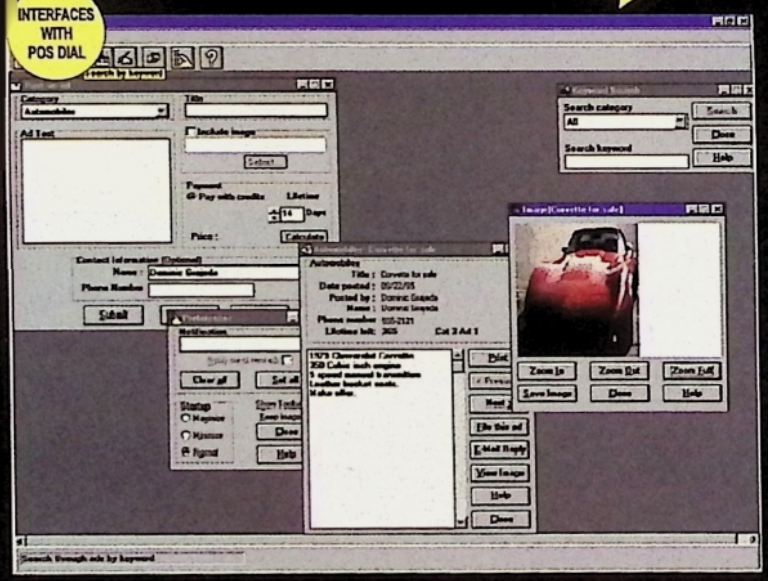


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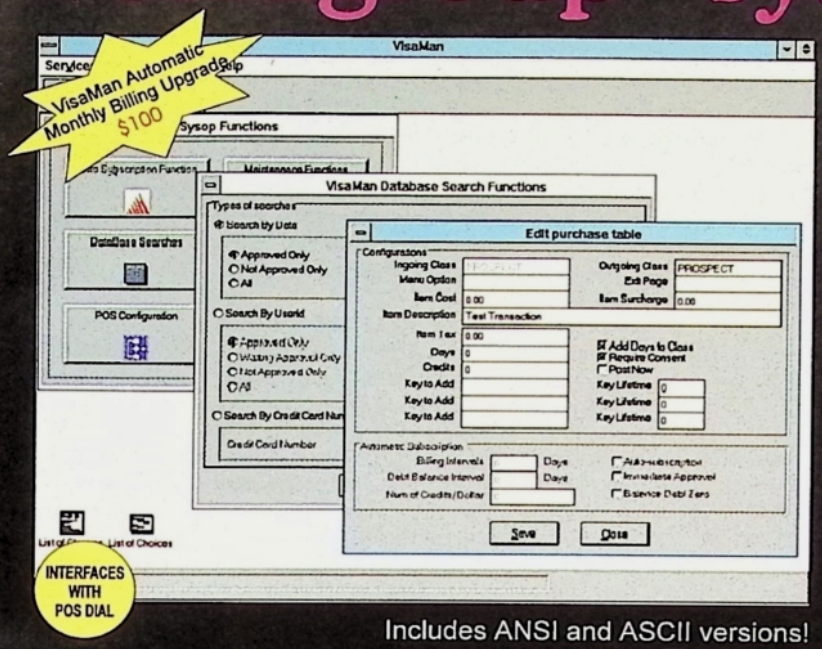
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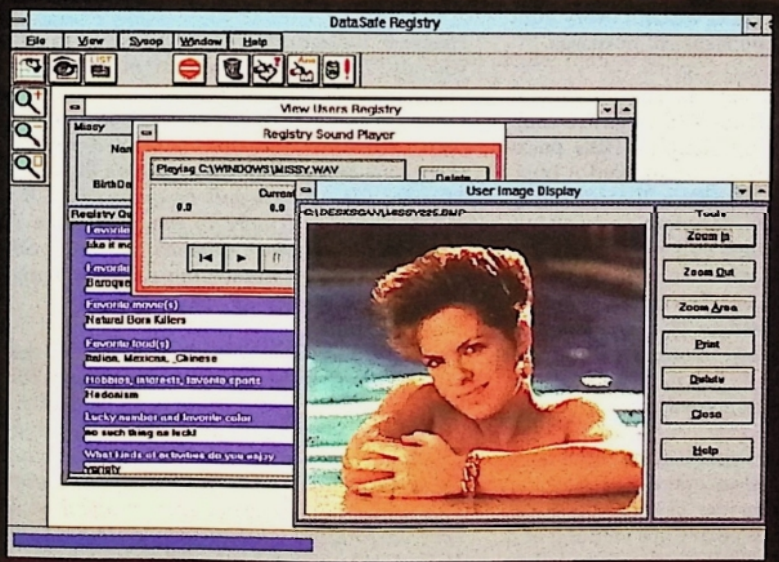
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continue to exist and evolve whether or not anyone actually makes any money from it.

95% of the net will probably always be pointless junk and that's the beauty of it. The 5% that remains useful and viable will be a dynamic and big 5% and that's all that matters. The fact that at any time, for any number of reasons, part of the 95% that is worthless can suddenly become the important 5% is the true virtue and the true driving force behind the internet's growth.

So to Mr. Thompson I would say get a life and "get over money".

Ironically the reason I'm writing has more to do with what I agree with than what I don't agree with. I agree with Mr. Thompson's assertion that people should let direct dial-ups do what they do, and let the Internet do what it does.

People have become narrow in their vision of the online spectrum. Nowadays everyone equates a modem with a single option called the Internet. This is ridiculous...particularly for the poor BBS sysop who suddenly finds his medium being beaten out by the Iinternet reputation. Mr. Thompson is right!

As sysops we have prayed and dreamed of fast modems and reliable BBS software. The era we finally get that...dial-ups are out! Now online journalists (and I specify journalists because I have yet to have any average individual tell me so) say everyone wants "connectivity" over speed and reliability. And if you're doing anything at all worth doing, you'd better be doing it on the net.

For example, Telnet BBSes are a joke. A travesty to common sense, and Mr. Thompson's comments hit the nail on the head all the more. You use your super high-speed modem to join a packet network of millions of others of people accessing the same more-often-than-not underpowered BBS, where BAM... you're staring at 300 bps quality once more. Just like the old days. And it's not like most Telnetables have anything unique or special to offer. Most of them seem barely configured past any of the default settings, and all of them charge more than even your large online service. What's the point?

Sigh

I believe that BBSes...particularly small BBSes, have more value today than they ever did. And anyone who unplugs their single-node operation is making a big mistake. At the same time I believe that there is a big shakeout of pointless BBSes wrought by the internet that was long overdue and inevitable.

BBSes were never meant to operate as online services catering to a random modem-capable audience. They were meant to be an inexpensive way for small online communities of people (maybe no more than 20 or so per service) to get together and share. I know I sound like the Unabomber here reflecting on the simplicity of yesteryear...but here, at least, the philosophy may apply.

In the pre-net-popular era when there were few things to do with a modem, BBSes thrived as the best thing a person could do to create an online presence or to be part of an online community. The first BBSes catered to a select handful of hackers and techies who shared very specifc and relevant information back and forth between themselves.

As BBSes became easier to erect and maintain, anyone who was inclined (this author included) could set up a BBS and call it an online service with nothing more than a few pretty screens. So began the massive move to "Compuserv-ize" dinky bulletin board systems. Companies like Galaticomm andMustang, and others, got into the business of adding more and more junk to the basic BBS software package under the assumption that everyone wanted to call online services...not little remote systems run in people's cellars.

Of course naive profit-seeking sysops bought into this and so was born the idea that if you didn't run a gazillion-line beast of a BBS, you weren't running a BBS at all (eyes rolling). Everyone forgot that these BBSes were, like, hey, *supposed* to be cheap nothings that were easy to set up and run.

To use an analogy, consider CB radio. Before its heydey CB radio was an inexpensive and useful way to set up small communication networks for family or business use. Then came the 70s, and *WHAM*. Suddenly every channel is filled to the brink with hundreds of chatting morons...destroying the possibility of using the CB frequencies for anything serious. How can you radio home to your wife if some jabber-jaw is blasting an overpowered box on the same channel or all the channels for that matter, with nothing but requests for other loudmouths to talk to? Gimmie a break!

When the fad -finally- died, the air cleared and the true usefuleness of CB radio was restored because it was suddenly a *feasible* inexpensive communications option without every aunt and uncle using it for nonsensical purposes.

I believe the internet has "cleared the air" for BBS sysops now. Maybe BBS software companies will stop selling complex BBS packages that take a week to set up and a business plan to operate. People will stop calling BBSes out of random boredom (a pasttime eclipsed by net-surfing), and only call those directly associated with their immediate interests. BBSes will survive in a better form although they will need to be communicated about and demonstrated in smaller in-person cliques, because that is what it will take to get callers. But this is a good thing.

For the small club or organization, nothing is better than a small dial-up operation. Nothing. That is unless you consider opening up a web site where hundreds of people are yanking at it at once, better. It may be some time before people re-realize that being the sole owner of a single connection (e.g. the one node into a BBS), is the fastest most efficient way to carry out online activities...but demands on their efficiency quota will remind them. BBSes are inexpensive, enable a far greater deal of control, filtering, and sometimes some badly needed isolation! I'm probably the only person in the world who thinks America Online should get out of the internet business (except for e-mail which people really DO need), and concentrate on a localized operation.

The internet offers the ever-important connectivity and all the benefits associated with that. On the one hand I'm sad to see every software author programming 100% in that direction, but on the other I'm glad to see them gone, leaving behind their relics of "mega chat systems" and oodles and oodles of pointless door programs.

Being ***BOARDWATCH***, a business that had more of a stake in perpetuating the BBS as an online money-making service than as a single-node hobby run by those guys in their cellars, I know your way of thinking has evolved differently in the past five years and you will no doubt find a way to counter everything I've said. Money has a way of bringing out the defense attorney or debate-master in all of us. That's not an insult...it's an economic reality. If your publication could have supported itself or made a profit on the mere thousand or so single-node sysops out there, I'm sure it would have much preferred to remain the niche publication you oft reflect that it once was.

But today all I can reinforce is Thompson's point: let the web be the web, and the BBS be the BBS.

Dave

David Pinero
dpinero@pobox.com/
http://www.pobox.com/~dpinero
DigiCom, Inc. Web Site
http://www.pobox.org.sg/~digicom

Dave:

However inelegantly put, I find much in what you say. It sounds like you are more in agreement with Mr. Thompson than in disagreement. I rather find the CB Radio fad analogy both charming and apt. And I agree that there will be small dialup systems for dozens of years yet. But it will be quite like CB or HAM radio, and more to the point, like the "appliance operator" element of that. So I don't see a lot of innovation or movement in that area. So what's to cover?

***Boardwatch** has always been about PC communications. We've always covered large commercial online systems, bulletin boards, fax, cellular, PDAs, and almost anything else that was low cost, efficient, and communicated. The BBS venue had little else covering them, and somehow we became their magazine. We covered Prodigy when it was TRINTEX, The Source when it folded and was bought by CompuServe, the first article on Personal Communications Systems (PCS) appeared in Boardwatch when it was an IDEA at Millicom - now every phone company is rolling it out this year. We predicted the cur-*

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rent competition in the local loop in 1988. We began covering the Internet in 1989 and by 1992 the Internet was on every single cover that year. That was nearly a year and half before the first "Internet only" magazine started life. And after the Internet and World Wide Web similarly cease to be interesting, it is my intention that we will cover what comes NEXT in PC communications.

In any event, your perspective on bulletin boards of the future was interesting, and perhaps accurate.

Jack Rickard

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SUBSCRIBE

Greetings Jack,

I'd like to compliment you on the magazine. I've been a faithful reader for several years now. For 28 days or so each month, I eagerly await the next issue (wish I could learn to savor it longer than two days). However, when the renewal notices started arriving in my mailbox I found myself transferring them directly to the recycling bin. In short, I had pretty much decided not to subscribe this time around. I wasn't completely pleased with the direction the magazine had taken.

However, while browsing through the June 96 issue I was pleased to find a real breath of fresh air. Jim Thompson, in his "Technology Front" column, was the first person in a while (maybe ever) to step back and take a open-eyed look at this whole WWW/Internet thing. I myself, have long wondered if the multitudes of companies currently on the Web are really seeing any sort of profit. I've held that at some point we'll be hearing the sound of more than few plugs being pulled as the novelty wears off and the bottom line sets in. With Web sites, both personal and commercial coming and going with the frequency of a Clinton campaign promise, I don't see myself ordering anything over the Web anytime soon. I've come close a few times times, but came down with cold fingers at the last second. True enough, I could run into the same problem ordering items over the telephone, but then we all have our own comfort zones don't we.

I'd like to touch on one more thing. What happened to Mothra (Doug Shaker's column)? This was one of the most enjoyable columns (IMHO) featured in Boardwatch. I believe this was a column that many folks who are in the business of creating an online system could identify with. On top of that, Mr. Shaker has a wonderful way with words. I can often be heard muttering "building things out of sticks and mud, thats what I should be doing"! Ok, so it's not that deep, but I've been there....bet you have too.

As I mentioned above about comfort zones, I jumped into mine this afternoon, called Boardwatch on the telephone, and will be receiving the next 12 issues. The only thing I'm left wondering is how much of the $36.00 you'll be kicking back to Jim Thompson. Damn fine column Jim! Should be enlarged, placed on the walls of ***Boardwatch*** under the heading.... Internet RealityCheck!

Take care Jack,

Brian Kile
SysOp—The Information Detour Online
briank@idetour.com

Brian:

I don't think the online world has ever been bottom-line driven. People do things mostly to prove they can be done and create new connectivity modes. The juice in having created one is very addictive. That said, I do see a bit of a weblash coming. And I think Jim Thompson will be viewed as early to the table on this one. I don't think it will matter. There will be a lot of web yet to come. But hopefully some reality components will shift development toward truly useful things.

Doug Shaker was one of my own favorite columnists. The problem was that he did the "beginners column" and everyone we've ever had do that burns out on it about the same time they aren't a beginner anymore. Doug went from beginner to sysop burnout in a little over a year. We offered to let him write about anything he wanted to, but his SmallTalk business and his family needed his attention worse than we did I guess. He has a standing offer to come back on any topic, any issue. Send him e-mail. Twist his arm. I'd love to see him in here again. We loved him. He loved us. But he DID have a life.

Jack Rickard

◆◆◆

KUDOS TO JACK

Hello Jack,

I discovered your magazine last December and I'd like to commend you and your staff for putting together a fine publication. Although my experience with Unix and Internet is considerable I always find something quite valuable, because frankly, I just don't have enough time to do alot of R & D (what with having to maintain a Website, write CGI scripts, manage Listproc, Usenet News, gopher, FTP, etc., etc.).

Columns like that of Mike Erwin really make things easier for me. I still have to do a fair amount of investigation into the "latest and greatest", of course, but it's nice to have some of the leg work done for me (all of us).

I also really appreciate the insight of John C. Dvorak ... you certainly made a good catch, there. It's amazing how different his perspective is to, say, Jim Thompson (who may be a helluva nice guy but - in his own words - doesn't "get it").

What I really enjoy the most, however, is the "Letters to the Editor" section. You seem to have an excellent command of the English language and can always back up your opinions with well-thought out and intelligent discourse. I read with profound joy your response to Emily Murray of Health Canada (now I know why the Canadian Civil service is in such a state of disarray) who boo-hooed about women being referred to as "the ladies". In subsequent replies to letters to the editor from women who suggest that your sensibilities are in question (due to your reluctance to become a politically correct moron, on your knees at the feet of anyone with a placard), you keenly and *intelligently* restate your logical position.

Smooth, Jack .... real smooth.

Keep up the great work, keep writing your excellent "Editor's Notes", and hold your ground with those who would have you trade in your sensibilities for incestuous back-patting sessions designed to appease the social crybabies.

Finally, in noting your excellent writing, I thought you might be want to check out my Web site devoted to crossword construction. While you may not be a cruciverbalist, there is an archive of puzzles (some very difficult) sent in by members of my CRUCIVERB-L list. The page is here: **http://www.idrc.ca/~kevin/crossword.html**

(and if you're not into crosswords, save the URL for someone who is!)

Kindest regards,
Kevin McCann
Unix/Internet Administrator
IDRC
kmccann@idrc.ca

Kevin:

I'm pleased we're hitting the mark. I think we've got the best collection of writers we've ever had. Mikee actually hits me about four times a year with something I'm desperate to know about and find in his latest column as if by magic. John C. is an icon and it is extremely unusual for a magazine of this size to have a columnist of his stature at all. I have been reading him since the early 1980's when he was on the back page of InfoWorld and idolize him to such an extent it usually embarrasses us both whenever we happen to be in the same room. Jim Thompson IS a helluva nice guy. And you might keep reading. He kind of does "get it" but from a very different perspective. You have to read a bit of it to get just what he gets. And it is a little off center from the rest of us in here. Jim is actually a very experienced journalist having run Western News Service, a west coast wire line for many years. He also runs an online service for Marlboro racing news that connects several hundred sports journalists all around the world. He comes at all this from a very different angle, and I think it valuable to include that.

I confess I'm not a regular cruciverbalist - too many Yiddish words and printer terms. But as it so happens, my sister, who is also our office manager, has her entire fortune tied up in stacks and stacks of books full of crossword puzzles. She is the best Wheel of Fortune player I've ever seen in action. It's actually frightening. And she will undoubtedly go off the deep end for your web site.

Thanks for writing.

Jack Rickard

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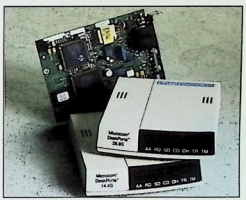
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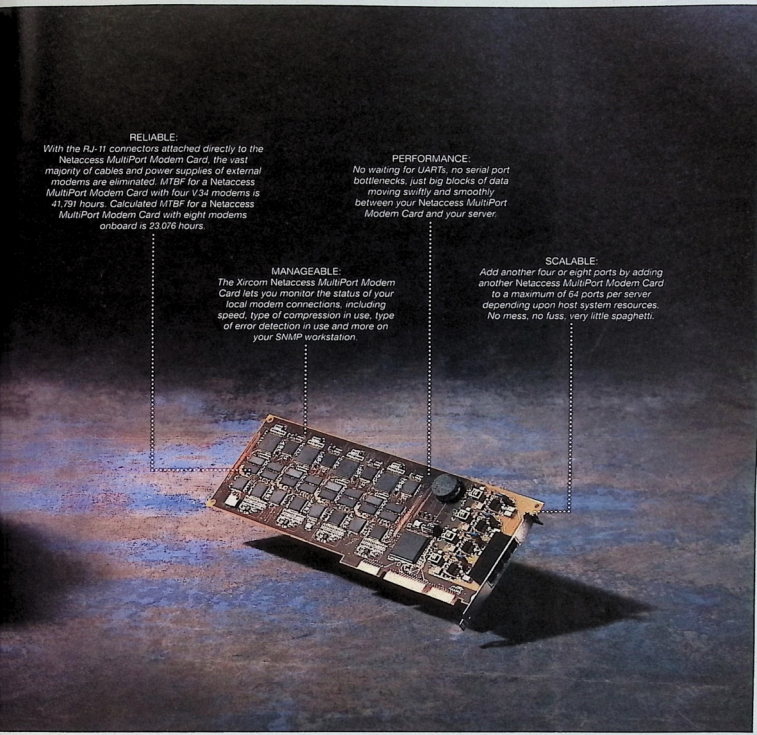
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TECHNOLOGY FRONT

by Jim Thompson
Western News Service

THE SQUEEZE PLAY: LOOKING AT THE NEW IMAGE COMPRESSION FORMATS

Jim Thompson is Managing Editor of Western News Service in Los Angeles, California. He also manages the Marlboro Racing News BBS. CompuServe: 72777,2677, MCI Mail: 321-4127, mailto: jim.thompson @wnsnews.com

Ever since it was announced that usage fees would be imposed for the use of the GIF image format (Graphics Interchange Format), there has been a push to establish a new standard for online graphics. The ever increasing popularity and use of the Internet and the World Wide Web has only made this more critical.

The concern with GIF began in December, 1994, when Unisys (the creator of GIF) announced that the LZW compression routine which is used in the GIF format violates a patent which they hold. At the same time it was also announced that Unisys would require a royalty for software supporting the GIF format.

To date, there are nearly a dozen formats that hope to inherit the markets that have been the domain of GIF. Some of these are excellent prospects, others are good ideas poorly implemented. This does not include the JPEG format, currently the most widely used on the Internet and on most online services. I'll take a look at three of the graphics file formats (not including JPEG) that, at the time of this writing, appear to be the best prospects for dominating the online arena.

Information on the file formats discussed here was gathered from a number of sources including the pages of ***The Encyclopedia of Graphics File Formats (Second Edition)***, written by James D. Murray and William VanRyper and published by O'Reilly & Associates, Inc. (see contact sidebar). This book is without doubt the best reference on graphics file formats available. I have borrowed liberally from it and encourage anyone who has an interest in graphics to rush out and buy a copy.

Since I will be referring to both GIFs and JPEGs throughout this article, let's begin with a short description of basic concepts of these formats.

GIF was introduced as a protocol primarily for the exchange of graphic data via online systems. The format is designed for 8-bit (256 color) compression. If the source image is 8-bit, then GIF will produce lossless compression; however, color loss will occur when GIF is applied to 24-bit images such as continuous tone photographs.

The JPEG format was specifically designed for compression of 24-bit continuous tone color photographs. Although it can produce high compression ratios, it is a "lossy" compression method — portions of the original image are lost during the process of compression. JPEG also has poor previewing capabilities and the speed of decompression is dependent upon the CPU of the computer on which it is displayed. If the photo is large and the processor slow, the result can be a very slow display. To date, it is the most widely used form of compression for photographs.

PNG (PRONOUNCED "PING")

In January, 1995, just one month after the announcement by Unisys that they were going to charge for the use of the GIF format, a group of graphics developers got together to develop a new graphics format which would not face any legal issues and which would address the weaknesses of the GIF format. The result was PNG.

PNG (which stands for "PNG's Not GIF's") is a bitmap file format which is capable of storing up to 16 bits (gray-scale) or 48 bits (truecolor) per pixel, and up to 16 bits of alpha data. One of the major benefits for online use is that it allows for the progressive display of image data. It also stores gamma, transparency and textual information. According to the PNG group, the format "uses an efficient and lossless form of data compression and meets or exceeds all of the functional capabilities of the GIF format."

PNG provides 100% lossless compression while achieving better compression than the GIF/LZW method. It also provides progressive image display and displays an initial image eight times faster than GIF (the first pass transmits only 1/64th of the pixels, compared to 1/8th for GIF). The "first look" image is quite fuzzy, but can be enough in many situations. For example, if you are downloading a large image that will be used for publication, this first look is enough to determine if it is worth spending the time for the full download. Some images, like clickable maps, need display only a rough outline before the user knows where he wants to click.

I also found the PNG images (once fully displayed) to be clearer than GIFs. The PNG group says this is because, "horizontal and vertical resolution never differ by more than a factor of two; this avoids the odd 'stretched' look seen when interlaced GIFs are filled in by replicating scanlines."

The full PNG specification along with sample images and even a PNG implementation toolkit is available on the CD-ROM that is included with ***The Encyclopedia of Graphics File Formats***.

A number of features were omitted from the PNG specification. According to the PNG Group, this was intentional in order to, "simplify implementation of PNG, promote portability and interchangeability, and make the format as simple and foolproof as possible



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THE THING ABOUT PNG

According to ***The Encyclopedia of Graphics File Formats*** PNG offers the following advantages and disadvantages:

PNG and GIF89a share the following features:

Format organized as a data stream

Lossless image data compression

Storage of index-mapped images containing up to 256 colors

Progressive display of interlaced image data

Transparent key color supported

Ability to store public and private user-defined data

Independent from hardware and operating system

The following GIF features have been improved upon in PNG:

Legally unencumbered method of data compression

Faster progressive display interlacing scheme

Greater extensibility for storing user-defined data

The following PNG features are not found in GIF:

Storage of truecolor images of up to 48 bits per pixel

Storage of gray-scale images of up to 16 bits per pixel

Full alpha channel

Gamma indicator

CRC method of data stream corruption detection

Standard toolkit for implementing PNG readers and writers

Standard set of benchmark images for testing PNG readers

The following GIF features are not found in PNG v1.0:

Capability of storing multiple images

Support of storage of animation sequences

Payment of a licensing fee

for users." PNG does not support multiple images in one file at this time, making video and animated images impossible. The developers may add this feature if users demand it.

FRACTAL IMAGE COMPRESSION (FIF)

Fractal compression relies on a very different method of compression than is found in other graphics formats. The basic concept is that virtually all objects (including photos) contain repetitive information or repeating patterns called ***fractals***.

Benoit Mandelbrot first coined the term fractal as a way of describing repeating patterns that he observed occurring in many different structures. The patterns were reportedly nearly identical in form at any size and occurred naturally in all things. Mandelbrot also discovered that these fractals could be described in mathematical terms and could be created using very small finite algorithms and data.

Fractal encoding of an image can require billions of calculations. Compressing an image can take a few seconds or hours depending on the size and complexity of the original. The upside is that the decoding process is much simpler and faster. Basically, all that needs to be done to display the image is to "interpret the fractal codes and translate them into a bitmap image." The original collection of pixels that forms the image is transformed into a mathematical description of the image that is both compressed and independent of the original resolution. This makes fractals ideal for CD-ROMs, the Internet, databases, etc.

Several methods of fractal encoding/decoding are available, but the most popular and best is implemented by ***Iterated Systems, Inc.***, in Atlanta, Georgia. The ***Fractal Transform*** algorithm was created in 1988 by Michael F. Barnsley of Iterated Systems. Barnsley's transform was the first practical algorithm used to mathematically describe a real-world bitmap image in terms of its fractal properties. Iterated is currently offering a number of tools for both the developer and the end user. These include tools for compressing the images and a plug-in for Netscape 2.0 so those surfing the Net can view the images.

This fractal stuff is HOT! Not only can the images be displayed progressively but you can also begin the download process by displaying a small but very clear thumbnail version of the image (this requires only 5% of the original image to be received before it is displayed) which grows in size and detail as the image is received. When viewing the image on the Net, one can then zoom any part of it to full-screen with no loss of clarity, pixelization or distortion. It can be moved around the screen, flipped vertically or horizontally, stretched, copied and saved.

The size of the compressed images can be more than 100 times smaller than their bitmap sources. I took a 2.4-MB TGA photo and compressed it using ***Iterated Fractal Viewer***. The result was a file that looked every bit as good as the original but was only 33 Kb in size. At 14.4-bps this takes only about 20 seconds to download. The first look at the image is displayed after only 5 seconds with updates (which make the image clearer) about every 5 seconds. It took approximately 50 seconds to compress the image on a 90-MHZ Pentium.

Unlike JPEG compression, fractals do not discard data in proportion to the amount of compression, but achieve greater compression ratios "using greater computationally intensive transforms that may degrade the image, but the distortion appears much more natural due to the fractal components."

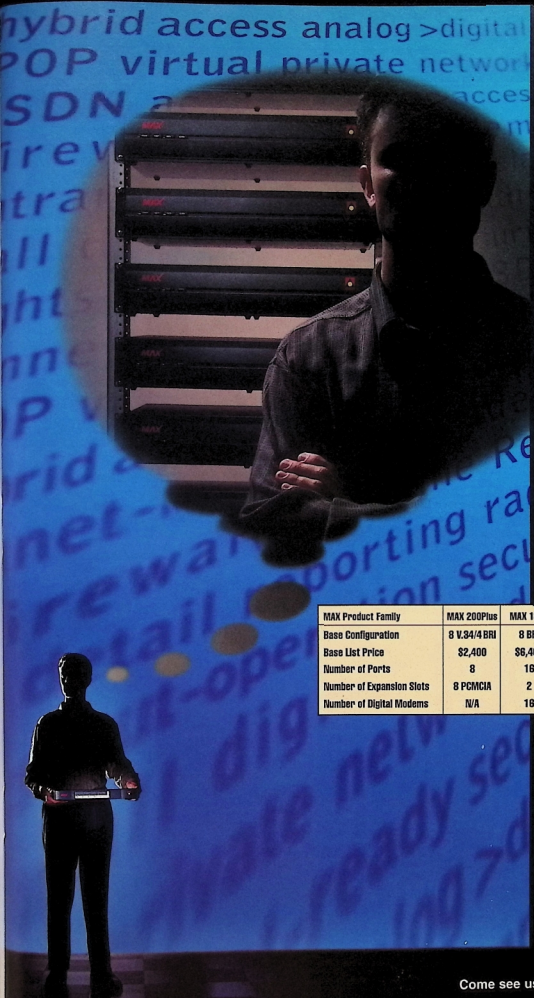
Iterated Systems, Inc. also offers programs that allow video to be compressed using the fractal method. ***CoolFusion*** from Iterated Systems, Inc. is a Netscape navigator 2.0 plug-in that allows Web surfers to stream AVI video files through standard HTTP connections. With CoolFusion, you can view full-color AVI files as they are received, instead of waiting for the full image to be downloaded.

Although fractal compression is lossy, the process can be controlled so there is no "visible" loss of image quality. The quality (perceived and actual) of the final image involves a number of factors including encoding time, image quality, and size of output.

ART

The ART format was developed by ***Johnson-Grace***, a firm founded in 1992 by Steve Johnson and Chris Grace. This compression technology is being used by America on Line, Apple Computer Inc.'s World service, ***Business Week*** and the ***New York Times***.

ART is also available with the following Web browsers: Netscape 2.0 for Windows (production release), America Online for Windows, America Online for



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*Dell'Oro Market Research Group, 1995 (dial-in access server market share)

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the Mac (next release), Apple eWorld (next release), GNN (InternetWorks), SuperHighway Access for Windows (Frontier Technologies) and InterGo for Windows 95 (TeacherSoft).

Like JPEG, compression ratios are adjustable with the higher compression ratios being lossy. However, there is also a lossless mode. Like fractals, ART is capable of compressing full-motion video as well as photographic images. Johnson-Grace describes ART as a "universal compressed stream for all types of online images and all publishing purposes — extensible to include other types of multimedia information such as text, video, animation, and sound." ***ART Press 2.0*** (the current version) compresses images. Reportedly, ART Press 3.0 will also support sound (both MIDI and WAV) interleaved with an image in a single ART compressed file. Typically, ART images are about one-third the size of comparable JPEGs or GIFs.

The ART format uses a "fuzzy logic" that detects the type and color depth of the images to be compressed, then consults a toolbox of compression techniques to "optimally compress" each type of image. The result is that you do not have to use both JPEGs (if the image is a 24-bit photo) and GIFs (if the image is a graphic) on the same Web page.
Like Fractals, ART images are transmitted and displayed in progressive stages or layers. As the image is downloaded, the first layer is displayed as a full-size or a thumbnail preview, depending on the sysop's preference. The image becomes progressively clearer or larger as more information is received. Johnson-Grace calls the first layer transmission the "Splash" image. The size of the Splash layer ranges between 1 and 3 KB, so it will appear on-screen in a few seconds. During the compression process, the user may select whether the remainder of the compressed data should be displayed in one or two additional layers (or passes). This means that the number of layers transmitted can be varied according to such things as modem speed and display capabilities. A single ART image can "supply different image quality levels" without the need to store several versions of the same image.

It is also possible to simply display the initial view of the image as a thumbnail and then expand the image only if the user requests it. Using this method, the need to download a separate thumbnail image is eliminated.

CONCLUSIONS

All three methods of compression described here offer important advancements in the image compression arena. All offer highly efficient compression algorithms along with progressive displays. Both FIF (Fractal Image Format) and ART provide much better compression ratios than PNG. I also like the fact that both FIF and ART allow you to display a thumbnail of the image which grows in size as the full image is received. The FIFs and ART also provide compression for video as well as images.

Personally, I have always been a fan of the Fractal Image Format. I have used it in various forms for a number of years and find it to be efficient and easy to use. It does take slightly longer to compress images using the fractal format than with PNG. However, this is more than compensated for by the speed of the display (decompression). You can also compress images using a batch method making the process relatively painless.

I also like the scaleable and streamable aspects of the Johnson-Grace ART format. This compression method also offers the ability to compress many different types of images.

All three compression methods are excellent and, aside from personal preferences, I cannot recommend one over the others. For most, the final decision will be based on individual need and, most importantly, the cost of a license to use the various technologies. ◆

CONTACTS:

The Encyclopedia Of Graphics File Formats

O'Reilly & Associates, Inc.
103A Morris Street
Sebastopol, CA 95472
Inquires: **(800) 998-9938** or **(707) 829-0515**
Orders: **(800)889-8969**
WEB: **http://www.ora.com**
COST: **$79.95**

JPEG

The JPEG standard is available in English, French or Spanish. Copies can be ordered in various formats from:

American National Standards Institute, Inc.
Attention: Customer Service
11 West 42nd Street
New York, NY 10036
Tel: **(212) 642-4900**

WEB: A lot of Web sites offer updated information about the JPEG format. I suggest that you do a search using Yahoo or other search facility for the word "JPEG." The Kodak site is among those offering current information, their address is: **http://www.kodak.com**

PNG

Group 42, Inc.
Tel: **(800) 520-0042** or **(513) 831-3400**
Web: **http://www.group42.com**
The current PNG specification can be found at: **http://unc.edu/boutell/png.html**

FRACTAL IMAGE COMPRESSION (FIF)

Iterated Systems
3525 Piedmont Road
Seven Piedmont Center, Suite 600
Atlanta, Georgia 30305-1530
Tel: **(404) 264-8000**
Web: **http://www.iterated.com**

ART

Johnson-Grace
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Newport Beach, CA 92660
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Web: **http://www.jgc.com**

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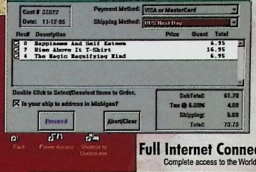
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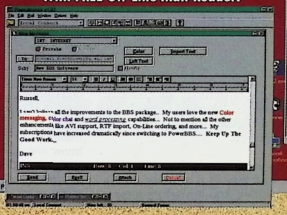
Customize your own database display screens



Graphical Games

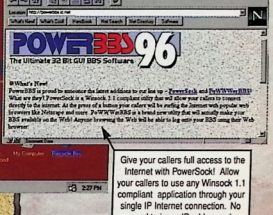


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Computer Shopper.

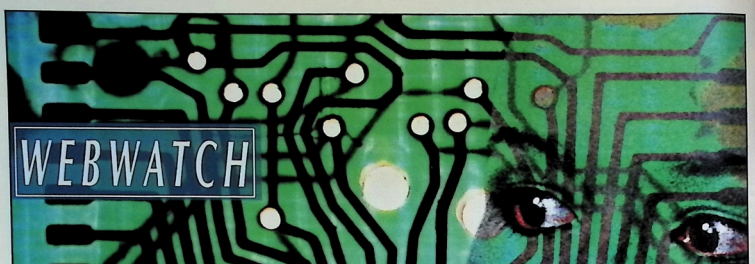
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Years Windows Product Available	BETA	DOS	1	1	BETA	5
Graphical Formats Supported	3	23	7	7	3	26
GUI/ASCII/ANSI Connects	✓	✓				✓
Create 24-bit 5k-10k Resizable Previews				✓		✓
Play WAV & MIDI Files		✓		✓		✓
Free Off-Line Mail Reader		✓				✓
GUI (RTF) Message Editor		✓	✓		✓	✓
On-Line Databases		✓	✓	✓		✓
Runs DOS Doors	✓	✓				✓
Direct Internet/Network Access	✓	✓	✓	✓	✓	✓
Internet Mail/Newsgroups	✓	✓				✓
Telnet/FTP Access	✓	✓				✓
MAPI Client	✓					✓
Multi-Room Teleconference	✓	✓	✓	✓	✓	✓
Full-Video AVI Support				✓		✓

Data compiled from reputable sources, November, 1995.

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BABB'S BOOKMARKS by Chris Babb



Chris Babb is a Senior Systems Engineer for Control Masters, Inc., a Systems Integrator located in Downers Grove, IL, where he designs industrial automation software by day. He's a member of the Aquila BBS/Internet Team by night. Chris has worked with Aquila since 1990 and currently handles technical support, Web design and construction, Internet training and various other online and offline duties. In his meager spare time, Chris enjoys music, playing bass guitar, the outdoors and his kitties. You can reach Chris via mailto:**chris.babb@aquila.com**

This month we'll delve into sites that ISPs and others actively involved in building the Internet should know about. But first, a couple of other items that I need unleash from my fingers:

Netscape, your browser is a pig and slower than hell! Do all of us a favor and give us a browser. Just a browser. Lose the newsreader and e-mail programs from the basic package. Take a hint from Microsoft and make them a separate module that only people who really want it must install.

Microsoft, your browser is getting better but still doesn't beat Netscape.

Win95 and **Mac** users, drop the "mine is bigger than yours" mentality. It's not the size, it's how you use it that matters. They both suck as much as they are both great. Use what you like and for God's sake, find something more adult to talk about! Maybe like how to make them both better?

WOW! I feel much better now. Time to educate. Fire up those browsers and let's get to it!

INTERNIC
http://internic.net



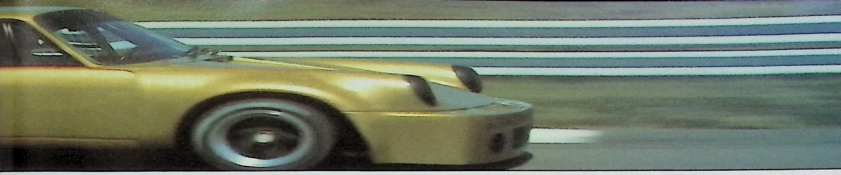
In the midst of all the glitzy graphics, witty words and information that threaten to overwhelm us on the Internet, the most important and probably most overlooked resource is the InterNIC Web site. The InterNIC is that omnipotent being that assigns IP addresses (the numbers you don't have to remember) and is the final authority and keeper of domain names (the addresses you DO have to remember). This site also contains a host of other information and services that ISPs and users alike should know about, bookmark and explore. The InterNIC is a two-part effort by AT&T (American Telephone & Telegraph) and NSI (Network Solutions, Inc.) that is under a five year cooperative contract with the NSF (National Science Foundation).

At this site are complete instructions, forms, FAQ's and other information pertinent to choosing and registering your own domain name. You can also pay the required registration fees, research domain names through several Whois services, track the progress of your registration and learn everything you never wanted to know about the InterNIC, its job opportunities and its history.

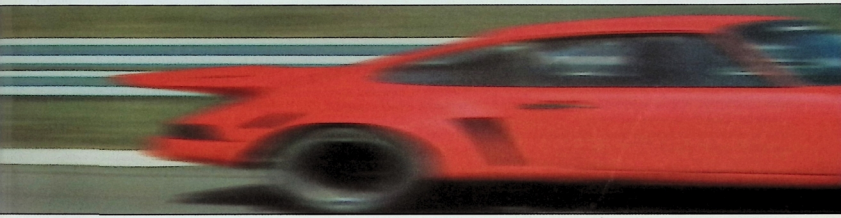
Other valuable information on this site includes ***Net Scout Services***, a project that scours the Internet for useful information and tools that can help you use the Internet effectively; ***Net-Happenings***, the daily postings of announcements and information useful to network administrators; ***InterNIC Support Services,*** providing information of use to the research and education community; and AT&T's ***Directory & Database Services,*** which provide a host of other information such as search engines for both the Internet and InterNIC, databases, resources, RFC's and other projects.

THE WORLD WIDE WEB CONSORTIUM (W3C)
http://www.w3.org

The W3C is the organization which developed the basis upon which the Web is now



THEY'RE FAST...

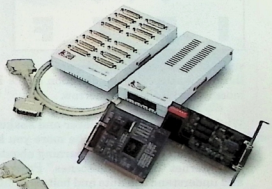


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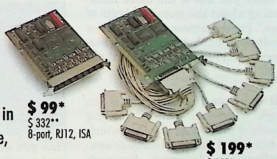
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being built. In their own words, it "exists to realize the full potential of the Web by developing common standards for the evolution of the Web through specifications and reference software." The consortium is funded and supported by Microsoft, Novell, NCSA, NeXT, MCI, AT&T and many other leading firms.

This site contains a huge pile of resources that Webmasters and designers can't do without. "About W3C" will help you learn more about the consortium, membership in it, current members, services that it provides and job opportunities. "About the Web" gives you great information on Web indexes and how to use them, text of presentations made by members of the consortium, how to put up your own web site, mailing lists, newsgroups, background on the project itself and information on how you can contribute to the development of the World Wide Web.

Anyone seriously into developing and providing Web Services should regularly check out the resources available at W3C. "Reference Software" is an excellent collection of general-purpose C code for Web applications, general purpose browsers, character based browsers (oh boy!), robots, clients, servers, tools and more. "Technical Areas" are the heart of this site and are filled with everything you need and want to know about the HTML & SGML specifications, graphics formats, fonts, style sheets, addressing syntax, protocols, CGI and much more. All of these resources are current and applicable to the business of the Web.

INTERNET ENGINEERING TASK FORCE

http://ietf.cnri.reston.va.us/home.html



The Internet Engineering Task Force is "the protocol engineering and development arm of the Internet." It is an open community of those interested in the evolution and smooth operation of the Internet and this site is the doorway to those who influence the direction of the Internet of today and more importantly, for tomorrow.

While you may not be a mover and shaker of the Internet, you do have an influence and the more you know, the more influence you can have. I enjoy learning about the nuts and bolts of the Internet "behind-the-scenes." Programmers need to know and understand the nuts and bolts so that their software seamlessly integrates with the protocols and interfaces that make it all work smoothly.

The depth and detail of this site are amazing. The work of the IETF is done mainly through what are called "working groups." These groups are organized into general topics which are further broken into what are called areas. The areas consist of topics such as Applications, Internet, Network Management, Routing Security and several others. Once into these areas you will find the names and e-mail addresses of the Chair, area directors and area advisor. Also listed is mailing list information, a description of the area, applicable Internet Drafts and finally the Requests For Comments (RFCs). These last two are the reason for the existence of the IETF.

Internet Drafts are the working documents of the IETF and are always subject to change. RFCs, on the other hand are the official standards; they are final and not subject to change.

Also available are the proceedings of IETF meetings in several different formats, indexes of Internet Drafts and RFCs and many other helpful hints and suggestions. Quite detailed, quite technical and quite the necessity for the brains behind the Internet.



THE INTERNET SOCIETY

http://info.isoc.org

The Internet Society was organized to promote global cooperation and coordination for the Internet and internetworking technologies and applications. Membership is open to individuals and organizations who are dedicated to maintaining the viability of the Internet and its applications. The membership list reads like a who's who in the industry with giants such as Ameritech, Fujitsu, Pacific Bell, 3COM, Apple, Microsoft and Sun and many others.

This site is the homepage of the ISOC and provides a stockpile of information about the society, its aims and goals, membership lists, press releases and much more. Some of the more interesting things here are global connectivity maps that give you a graphical overview of just how pervasive the Internet has become, listings of Internet providers from around the world and the history of the Internet itself.

Other information includes a listing of Society Chapters around the world with the necessary guidelines for forming your own chapter; Internet administration, operations and security bodies; various papers and presentations; Internet standards and those in charge of setting, defining and propagating them; and finally, a listing of interesting WWW sites from around the world. You can also join the Internet Society either as an individual or organization. Complete form-based registration is supplied. Individual fees range from **$25** for students to **$10,000** for commercial organizations.

WEB DEVELOPERS VIRTUAL LIBRARY

http://www.stars.com



Billed as "A Webmaster's Encyclopedia of Web Development and Software Technology," the Web Developers Virtual Library is a wealth of information, thousands of links to Web development information and probably the most complete Web creation site on the Internet today.

This site starts with the ***WDVL News***, a new e-zine that is used to inform everyone about the plans and new features of WDVL. It's actually quite pretty, interesting to read and useful. "Bookmarks" will take you to site listings for virtually anything useful and necessary for Web Design; consultants, authoring tools and information, graphics information, discussion forums, HTML standards, design methodology, publications — the list goes on and on. "Graphics" will give you all the

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poop you need for understanding and developing your own graphics, minimizing their bandwidth needs, and collections of freeware graphic images for use on your web pages. "Jobs" will present you with job listings from around the country for positions in networking, Web creation and anything else having to do with the Web.

The most informative and useful area of this site is accessed from the "Library" button. This is an immense collection of all the information that anyone who designs or maintains Web sites will ever need. Categories include CGI, training, HTML, operating systems, browsers, statistics, mail, forms, databases, caching and more. Selecting a category will further present you with sites and site descriptions.

I highly recommend this site as the definitive Web design information page on the Net today.

THE ELECTRONIC FRONTIER FOUNDATION

http://www.eff.org



Since the judges have finally ruled that the CDA is unconstitutional (implying that all of our so-called representatives who supported it obviously don't understand their job descriptions), I felt that this site was appropriate. Plus, it fits the scheme of this month's theme.

The Electronic Frontier Foundation is a civil-liberties organization that works to protect our freedoms with this new medium against the encroachments of those who think they know what's good for us. Thank goodness they do. This site is filled with great information on current laws, lawsuits and anything else that threatens our freedoms. The talk of the moment, of course is the CDA, and there is plenty of information available, including how the government itself is currently violating its own law. (See **http://www.netparty96.com/naughty.html#naughty1** – if you're over 18 or a Republican. Underaged Clinton Democrats don't want to get their Leader jailed.)

Other items of interest include information on the EFF; archives of the EFF which are separated into categories that range from activism to computers and censorship to privacy; membership forms; the EFF newsletter; and other related publications and organizations.

I suggest that everyone interested in keeping their freedoms on the Internet and preserving their ability to say, see and think what they want, when they want and where they want should support this excellent organization.

NutSite© Of The Month

Well, this one is certainly not for the faint of heart. If you don't like the sight of blood, maiming, killing or general mayhem, this site is not for you. If you revel in the above, welcome to the show!

DEATH NEWS

http://www.deathnews.com



A defining moment in my life happened many years ago during a vacation to Chattanooga, Tennessee. My friend Mark and I stayed with his uncle C.J., who was a newscaster for NBC. We were browsing through his video tape library and came upon a tape full of out-takes. Some were just a bunch of the same stuff we all get to see on "bloopers" shows. Funny, ha ha.

Suddenly, we started seeing some of those things that you wish they'd show but then wish you'd never seen. Car accidents up close and personal, complete with dripping blood and dismemberment galore. Shootings, bombings... Dr. B. Gross from the "Faces Of Death" movies would have been shocked at the carnage. This was 15 years ago and it still haunts me to this day.

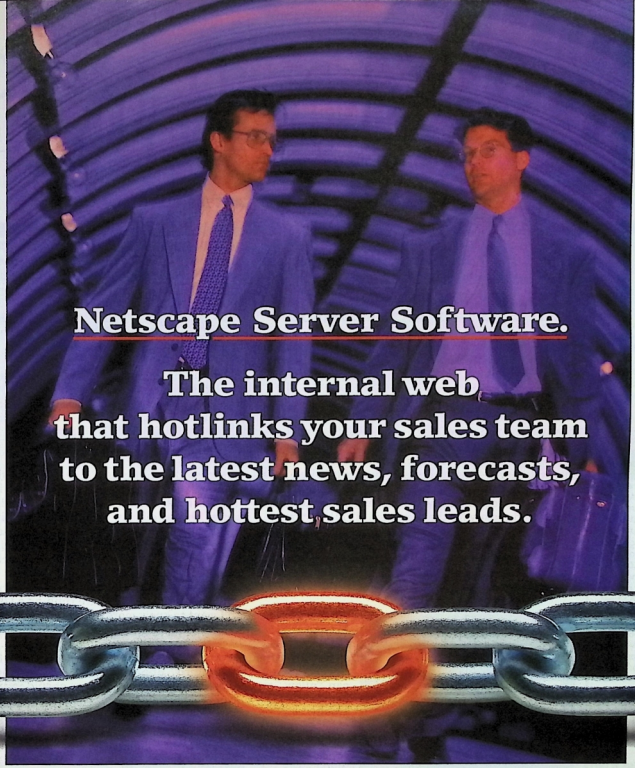
Death News is a much more polished version of the same. The only catch is that you have to pay to gorge on gore. For the low monthly fee of **$9.99**, you have access to years' worth of nightmare fodder. From the name of the site and my initial impressions, I figured that this was just another version of Dan's Gallery Of The Grotesque. Then I looked a little deeper and found Death News was quite impressive, educational and provocative. This site seeks to inform and educate. There is no glorification of death within these pages.

The major sections of this site include "Bad News," a zine for the members of Death News that discusses the site, new additions and upcoming features. "Death Loops" are .AVI and .MOV files depicting some of the most horrific scenes imaginable from around the world. June's collection included a highway bandit suffering the traditional Islamic punishment of having a hand and foot amputated (something we should start doing in this country), the public suicide of R. Budd Dwyer, body piercing and a few other choice morsels. "Death Files" is filled with gruesome and educational tidbits of information that help to explain the how and why of death and cultural views of death from around the world and throughout history. Of course, there is much more available, all of it interesting and as ghastly as you can imagine.

The fascination with death is increasingly prevalent in our society. This site helps to define it and provides information to those who are interested. If this is your interest, this is your site.

I have these as well as all of my past articles available for your feverish browsing natures at **http://www.aquila.com/babbs.bookmarks**

Comments, good (preferred) or bad (only if you must) should be sent **mailto:cbabb@aquila.com**◆



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PUBLISHING ON THE WEB

by Michael Erwin

PART 20 - CONTROLLING ACCESS TO YOUR WEB PAGES

We all have content on our web sites that we don't want everyone to view or receive. But we do want the authorized users to get to our "private" HTML documents or pages. This month I am going to show you various methods of user authentication, and how to use authentication on your web site.

Michael lives in Huntington, West Virginia, with his wife Jacqueline and Paxi Baby. (Jackie's Shar-Pei dog.) He has designed, built and administered network systems for over 16 years. Mike has organized and documented his 600-megabyte bag of tricks, tools and voodoo on a CD-ROM entitled, *"The WebMaster's Resource."* It is available for US$24.95, plus US$2.00 shipping in the United States or US$5.00 elsewhere; send check or money order to 320 36th Street, Huntington WV 25702-1632. Please allow 4-6 weeks for delivery. For more information **mailto: mikee @eve.net**

SIMPLE EXAMPLE OF ACCESS CONTROL

You run an ISP or a WSP, and have HTML documents that you want only your users or clients to be able to access. There is no need giving your competition all your secrets, right?

This can be easily accomplished by limiting access to a directory from only specific IP addresses. Better yet, we can limit access to a whole class C network or even higher. This is considered Domain-Level access control. The web server either accepts or rejects http requests based on the requesting system's IP address and whether the requesting system has access to the corresponding directory for the requested HTML document.

Exactly how you can limit access via IP address depends on which web server software you are using. So I will cover a couple of the more popular versions of web servers.

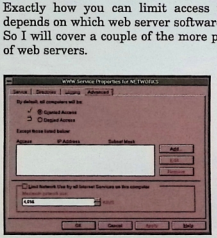


Figure 1
Microsoft's IIS grants access from specified IP addresses

For example, in Microsoft's ***Internet Information Server***, you can allow or deny access by simply adding the appropriate IP address to a list in the Advanced options window of the Network Properties dialogue (See Figure 1). Then you will need to define what directory you want to protect. If you have O'Reilly's WebSite, you can do the same thing from the WebSite Server Admin's "Access Control" tab.

If you are running NCSA or Apache web server software, it's not quite as easy. However, both NCSA and Apache use basically the same methods for controlling user authentication. To help you learn how all of the web servers basically work, let's take a closer look at how NCSA and Apache actually protect HTML document directories.

ACCESS CONTROL FILES

HTML document directories access is controlled by a file called the Access Control File or ACF for short. Now for NCSA and Apache the ACF is actually called **access.conf**. For both NCSA and Apache, **access.conf** will need to exist for the server to operate.

Take a look at Listing 1. This is the required "access.conf" file to meet our first situation. Let's break this file down.

The first line in the listing tells the web server which directory we are going to protect. In this case we are going to protect the HTML documents in **/var/www/docs/staff**. By the way, did you notice it kind of looks like an HTML tag? We will see more on that later.

The next line contains the OPTIONS directives. In Listing 1, we have told the server that if it can not find the **index.html** file in the specified directory, the server should display an index of the directory. The **FollowSymlinks** directive tells the web server that if there is a symbolic link in the specified directory, the user can follow that link to another directory.

(A symbolic link is a virtual file that points to another file or directory. If you are running a UN*X system, and want to know more about symbolic links, type the following at the shell prompt: **man ln<ENTER>**. Now back to our regular scheduled program....)

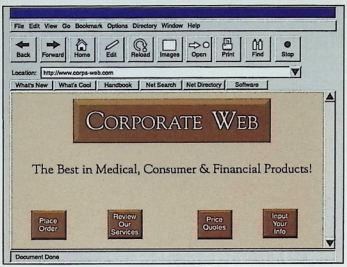
The third line in the ACF is the directive **AllowOverride**. In our case we should initially set it to "None." This tells the server that users cannot change the security methods set up on our web server. However, later on, we will see other options used with this directive.

Listing 1

ACCESS CONTROL FILE FOR NCSA OR APACHE SERVER

```
<DIRECTORY /var/www/docs/staff>
        OPTIONS Indexes FollowSymlinks
        AllowOverride None
        <LIMIT GET>
                order deny,allow
                deny from all
                allow from boardwatch.com
        </LIMIT>
</DIRECTORY>
```

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Then we come to a subsection in the ACF. In listing 1, this is the **LIMIT** subsection which starts on line four and continues to line eight. It tells the web server that we are going to limit HTML document requests, or gets. About time, right?

The fifth line, **order deny, allow,** tells the web server to follow the deny directives first, then to follow the allow directives. Hang on, it will make sense in a second. Notice that in line six of listing 1, we state to "deny from all." This tells the web server to initially deny *all* requests for HTML documents, no matter what security.

After the servers blocks all http requests, it then looks at the seventh line, **allow from boardwatch.com.** The web server then looks to see if the IP address of the system requesting the HTML document from the protected directory is in the range of IP addresses that belong to boardwatch.com as defined by InterNIC.

The </LIMIT> and </DIRECTORY> statements tell the web server that the LIMIT subsection is ended and so is the DIRECTORY section. Looks like standard HTML conventions to me.

Pretty slick, right? Well let's keep going, since we are on a roll.

ACCOMODATING MULTIPLE DOMAINS

You may want to allow access to a specific directory from a couple of different domains.

If you have Microsoft's ***Internet Information Server*** or O'Reilly's ***WebSite,*** you will simply add the additional domain names that you want to reject or accept access from.

If you have NCSA or Apache, all we have to do is change the **allow** line to:

allow from boardwatch.com one.com

This would allow anyone with IP address registered to boardwatch.com or one.com to access HTML documents in a specific directory.

BLOCKING ACCESS FROM SPECIFIC DOMAINS

Suppose we don't want anyone from the Evil-Empire company to access our HTML documents.

For NCSA and Apache users, in this situation we could change the LIMIT subsection to read as follows:

```
<LIMIT GET>
        order allow,deny
        allow from all
        deny from evil-empire.com
</LIMIT>
```

This actually reads as "allow everyone except those from the evil-empire.com."

Again, Microsoft's Internet Information Server or O'Reilly's WebSite provide configuration screens where you will simply add the additional domain names.

TENANT-CONTROLLED ACCESS

We run a basic Web Space Provider, or WSP. We want to give our clients the ability to handle their own authentication in their document directories without us having to do it for them. Here is where things change for those of you using NT based web servers. Sorry, but for the most part you cannot give your clients the ability to change their own authentication, at least not without a lot of work. (Frontier Technologies' SuperWeb Server's Remote WebMaster utility does provide this ability; see the June "Web Server's Dissected" column).

Those of you using NCSA or Apache are in luck, but it is going to be a two-part solution.

First off, we need to edit the **access.conf** file to look something like Listing 2. In this configuration, notice that we have removed the LIMIT subsection from the **access.conf** file. Also notice that we are going to protect two different directories, "Books_R_Us" and "BN_Bookstore."

Listing 2

```
# access.conf file
<DIRECTORY /var/www/docs/clients/Books_R_Us>
        OPTIONS Indexes FollowSymlinks
        AllowOverride limit
</DIRECTORY>

<DIRECTORY /var/www/docs/clients/BN_Bookstore>
        OPTIONS Indexes FollowSymlinks
        AllowOverride limit
</DIRECTORY>
```

Secondly, notice that we changed the **AllowOverride** directive from "none" to "limit." This will allow the clients to actually control the access to their own HTML documents via another file called **.htaccess**.

Listing 3 shows BN Bookstore's **.htaccess** file. What's with the leading period on this filename? NCSA and Apache run on UN*X. Since the file begins with a period, it will not be shown if you do a standards "ls" command. You would need to enter the following at the shell prompt to see the hidden files: **ls -a<ENTER>**

Notice that Listing 3 is pretty similar to the LIMIT subsection from Listing 1. However, the **.htaccess** file needs to be stored in the directory **/var/www/docs/clients/BN_Bookstore** as defined in the **access.conf** file in Listing 2.

With this solution, the client can create and edit who may access directories below their top directories.

So we are getting a little more complicated, but still fairly straight forward. Well let me change that.

Listing 3

.HTACCESS FILE WORKS WITH ACCESS.CONF IN LISTING 2

```
# .htaccess file
        <LIMIT GET>
                order deny,allow
                deny from all
                allow from bn-bookstore.com
        </LIMIT>
```

WHAT DO LOCKHEED AND THE WEATHER CHANNEL HAVE IN COMMON?

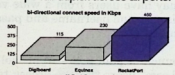


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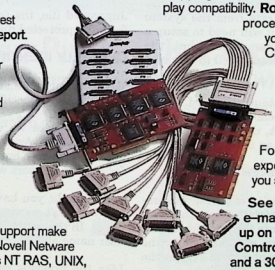
When these companies were looking for speed, reliability, affordability, and ease of use for remote access and peripheral control, they chose a Comtrol serial communications board.

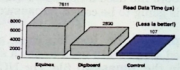
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GRANTING ACCESS TO SPECIFIC PERSONS

We want to protect our content from access by everyone except those in a select group, like the Boardwatch writers. So in this case we will need to do specific user authentication.

Here is where things change for those of you using NT based web servers. It's pretty much the same for each of the servers. For example, shown in Figure 2, WebSite users can use the "Users" tab in WebSite Server Admin to add users. SuperWeb provides even more data on each authorized user (See Figure 3).

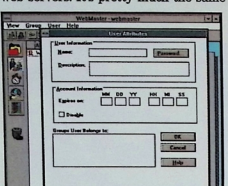


Figure 2
WebSite and SuperWeb Allow Easy User-Level Access Control

But those of you using NCSA or Apache will have the most flexibility. With a little work, you can automate your user administration even more than the NT based systems. It is going to be another two part-solution also like "access.conf" used with the ".htaccess" file, but with a slightly different twist.

Have you ever accessed a web site that requires a user name and password? Have you ever noticed you only have to type your authentication in once, even though you might request several documents in different directories, during your visit?

This is because your web browser remembers various items after you enter your user name and password. In fact your web browser sends a bunch of variables to the web server when asked.

This authentication username and password combination is in no way related to your system username and password files. Web user authentication is totally separate from the system username and password. This means you will need to setup a web username and password file. Remember that the **access.conf** file used a file called **.htaccess** ? Well in this case the file is going to be called **.htpasswd**.

The **.htpasswd** file, just like your system password file, is encrypted. So you will need to use a special program to create a user in the **.htpasswd** file. For NCSA, this program is the **htpasswd** utility. Its command-line syntax is simple:

htpasswd -c /var/www/docs/staff writers<ENTER>

In the above line, "-c" switch forces creation of a new **.htpasswd** file in the directory **/var/www/docs/staff**. Then the command will add the username "writers" into the new **.htpasswd** file. At that point, the password program, will ask you for the user's new password. It will then prompt you to retype the password for verification.

If we had not used the "-c" flag, the program would look in the specified directory for an existing **.htpasswd** file. If the username "writers" was not in the password file, it would have added the username "writers" to the existing file. If the user "writers" was found in the existing ".htpasswd" file, it would prompt you for the user's new password.

Now we need to change the **access.conf** file again. Look at Listing 4.

Listing 4

ACCESS.CONF FILE FOR USER-LEVEL ACCESS CONTROL

```
# access.conf
<DIRECTORY /var/www/docs/staff>
        OPTIONS Indexes FollowSymlinks
        AllowOverride None
        AuthUserFile /var/www/docs/staff/.htpasswd
        AuthGroupFile /dev/null
        AuthName Restricted Access.
        AuthType Basic
        <LIMIT GET>
                require user writers
        </LIMIT>
</DIRECTORY>
```

In Listing 4, we have added a couple more directives. The first one is **AuthUserFile** which tells the server where the password file is located for the protected directory. It also tells the server the name of the password file, **.htpasswd**.

The next directive, **AuthGroupFile**, is set to null. We will use this directive in the next situation. Next is the **AuthName**. Think of "AuthName" as a prompt definition, in this case the browser will display a dialog box with the message "Restricted Access" displayed in it.

The AuthType directive is currently being modified by some UN*X servers, so read the documentation on your software. It is set to "Basic" in our example.

Also notice that in the **Limit** subsection we didn't use the other directives, but instead used a new directive, **require user**. This also makes you define which user can access the **staff** directory. The end user enters the username "writers" and a password. If the password matches that of the one stored in the **.htpasswd** file, the server will send the requested document from the protected directory.

UNIQUELY IDENTIFYING INDIVIDUAL USERS

We want only paid subscribers to our content service to gain access to those specific HTML document directories.

So in this case we will need to do specific individual user authentication. Again we may have users from a wide variety of domain names, but in this case one username and password for a group of users won't cut it.

For example, you have a bunch of paid users from "aol.com", but you don't want all "aol.com" users to have access to your pages. In this situation we want the user to be prompted for a user name and a corresponding password.

Like the previous situation, those of you running NT based servers have it easy. Those of you running UN*X servers, well guess what? We are going to add yet another file to your system — **.htgroup** — and another directive in the **access.conf** file.

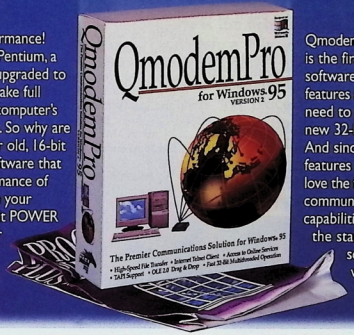
Let's look at Listing 5 for a second.

The first thing you will notice is that we changed the location of the **.htpasswd** file. In this case we want only one password

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Listing 5

```
ACCESS.CONF FOR USE WITH .HTGROUP FOR
UNIQUE INDIVIDUAL ACCESS CONTROL

# access.conf
<DIRECTORY /var/www/docs/subscribe>
        OPTIONS Indexes FollowSymlinks
        AllowOverride None
        AuthUserFile /var/www/docs/conf/.htpasswd
        AuthGroupFile /var/www/docs/conf/.htgroup
        AuthName Subscription Access
        AuthType Basic
        <LIMIT GET>
                require group subscribers
        </LIMIT>
</DIRECTORY>
```

file containing all of our web site's users. So we put it in the configuration directory for convenience.

However, in the very next line, we have added a new directive: **AuthGroupFile**. This directive tells the web server the location and name of the text file containing the group names and who is a member of each group.

The format of this **.htgroup** file is pretty simple:

```
# Sample .htgroup file
subscribers: jack david john chris mikee larry harold
staff: jack david gary patty jackk cathy roger kathy donny
writers: john david johnc chris mikee forrest phil
```

Each line starts with the name of a group – "subscribers," "staff," etc. – followed by a colon. The usernames of the group's members follow, separated by spaces. Notice that users can be members of multiple groups.

The users defined in the **.htgroup** file must also exist in the **.htpasswd** file; otherwise, the authentication will fail.

The other thing we changed in Listing 5 was the LIMIT subsection. Notice that we changed "require user writers" to "require group subscribers." This will make the server require a user name and password to access the specified directory, **/var/www/docs/subscribe**.

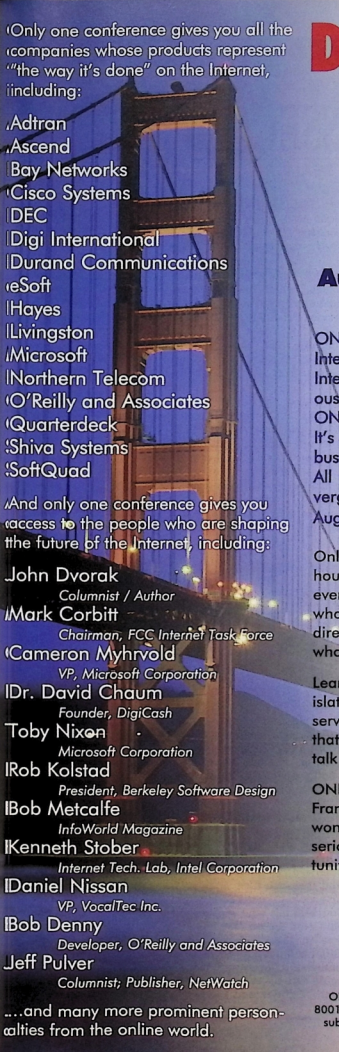
So when the end user enters a username and password, the server will first validate the user name and password against the **.htpasswd** file. Once the user is authenticated, the server checks the **.htpgroup** file to see that the user is a member of the group "subscribers". If the end user is a member of the group, he gets the requested HTML document.

Now for the benefits of doing all of this work. If you are running a UN*X based server, it would not take much to write a simple CGI script that would allow remote or even automated user and group management. Now that I have said that, I bet a bunch of web server software companies rewrite their user and group management. Good.

Is all of this complicated? Yes, but so is life. But items like these are what separate professionals from amateurs.

We will continue the topic of web security in the next issue. Till next month... ◆





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WEB SERVERS DISSECTED

by Michael Erwin

BSD/OS AND APACHE—A WINNING TEAM

This month I was able to dissect two items at once: the ***Apache v1.0*** web server and ***Berkeley Software Design Inc.'s*** Internet Server v2.1, a.k.a. ***BSD/OS v2.1***. I have been wanting to review both for quite sometime, but due to various things, it just came together here lately.

People familiar with the UN*X world think of BSD as Berkeley Software Distribution, the University of California-Berkeley group that developed the 4.4 BSD-Lite UNIX flavor. BSD became BSDI, and BSDI v2.1 is based on 4.4 BSD-Lite, but with a twist.

Now before those of you who hate UN*X and only run NT based machines go away, I implore you to continue reading on.

The product came in a normal sized box. The package contained three floppies, one CD-ROM, a manual and miscellaneous vendor's product flyers.

Unlike normal, I didn't keep everything fair, I installed the BSDI v2.1 on the following system.

NEW TEST PLATFORM:

Intel Pentium 133mhz CPU
32mb of EDO RAM
2gb SCSI HD
S3 PCI Video Controller
3Com 3C509c ISA Combo Ethernet Card
Toshiba 3401b External CD-ROM drive

The test system has been upgraded some. My wife, Jackie, said either she or the Indy had to go. Well, I showed her. I went right out and upgraded my current system to a 133mhz motherboard with CPU and 256k pipeline cache for **$375**. I also purchased 32mb of EDO RAM for **$260**, and *then* I returned the Indy to its box! :-)

Given the change in platoform, I can't say whether BSDI beats Windows NT. However, most of you have seen the Microsoft advertisements that show their Internet Information Server in comparison to Netscape's web server. Did you notice that they included the Netscape web server running on both NT and BSDI for comparison? Supposedly identical systems, and guess what? Netscape running under BSDI beat Netscape running under NT.

INSTALLATION

The installation went without a hitch. I inserted the boot floppy and the CD-ROM. Powered on the system. Answered a few simple questions. Then in about 20 minutes or so it was finished. The system rebooted. Ta-Da! One fully working and configured UN*X system.

Many of you might have heard me say a system is "Prego," which means "It's in there." BSDI is Prego. Most anything you can ask for as an ISP or WSP (Web Service Provider) is built into BSDI v2.1.

The slim (225 page) manual is concise and to the point. It tells you everything you really need to know without fluff or fuss.

BSDI may not support every piece of obscure hardware known to man, like Linux seems to do. However, BSDI does support most quality hardware (which all of us use, right?). That includes integrated CSU/DSU cards, multiport serial cards, standard LAN adapters including Ethernet, Token-Ring, Wireless and FDDI. It has support for both SCSI and IDE/EIDE controllers. It will even handle the popular sound cards like Sound Blaster, Pro Audio Spectrum, Gravis Ultrasound, Microsoft Sound System and even the "clone" versions.

CONFIGURATION & ADMINISTRATION

At this point, I had a working UN*X workstation, or should I say server. This was a totally painless UN*X install! For those of you running Linux or Free-BSD based systems who are thinking about moving to a commercial version of UN*X, look at BSDI v2.1! Heck, BSDI even gives you a sixty-day money back policy, and free tech support for the same period.

System administrators will be delighted to see that BSDI put almost everything into a script of some sort. For example, to add users to your system simply type **adduser<ENTER>** at the prompt. Want to configure, add or change your DNS files? Simply type: **config_dns<ENTER>** at the prompt. That one alone is worth a fortune.

BSDI also provides **cron** jobs to send me e-mail on administration, security and system usage daily, weekly and monthly. That way if someone adds or deletes a user or changes their password, you will receive a summary notification. It even rotates the log and message files weekly. Worth its weight in gold. You could take the time to write all of these scripts for yourself, but who wants to? That is one of the things that paid for BSDI.

BSDI will not only act as terminal server supporting a bunch of dial-in users, it will also act as a router. You could actually create a respectable ISP on one box. The manual states that you can have 254 dial-in lines into

Michael lives in Huntington, West Virginia, with his wife Jacqueline and Paxi Baby. (Jackie's Shar-Pei dog.) He has designed, built and administered network systems for over 16 years. Mike has organized and documented his 600-megabyte bag of tricks, tools and voodoo on a CD-ROM entitled, *"The WebMaster's Resource."* It is available for US$24.95, plus US$2.00 shipping in the United States or US$5.00 elsewhere; send check or money order to 320 36th Street, Huntington WV 25702-1632. Please allow 4-6 weeks for delivery. For more information mailto: mikee@eve.net

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one system that supports SLIP, PPP modem connection or terminal connections, while at the same time providing IP connectivity to the rest of your LAN.

APACHE

What word has struck the most fear into the hearts of commercial web server software companies? ***Apache***. BSDI comes with the Apache web server, which is configured by running **config_www**. Now if you haven't heard much about Apache, then you have not been listening closely, have you?

As of the first of July, a survey of 252,685 Web servers conducted by Netcraft showed that Apache now owns 33.04% (or 83,485) of the server market. (See **http://www.netcraft.com/Survey**) ***NCSA's httpd*** is at 21.84% (55,190), and falling. By comparison, ***Netscape's*** servers, both commerce and communications, claim a total of 15.19% (38,399), and Microsoft's IIS scores a puny 3.35% (8,459).

So what does Apache do that the others don't? Well honestly, not much. However, it seems to be the *fastest* web server on the market. It is capable of multi-hosting. It even has the ability to handle some fairly complex user authentication schemes. For example, Apache comes with DBM file support. DBM files are basically self-maintaining hash tables. DBM support is great for maintaining a large user authentication base because of pure speed, and is native to most variants of UN*X. As the Apache documentation points out, this is what "HotWired" uses to maintain their database of 150,000+ users.

Apache is free, but you pay for support. Unlike the commercial web servers, support is only available through the usenet news group **comp.infosystems.www.servers.unix**.

CGI, SSI AND ETC.

As you might have figured out by now, I like UN*X, and especially BSDI v2.1. I am not prejudiced against any other operating system. However, I feel many people choose an operating system based on "feeling," not capability, stability, performance or even availability of applications. This leads to one of the great things about using UN*X as a platform for web servers. CGI scripts! The best CGI scripts are mostly written in PERL or C, both of which BSDI also includes. So you can take advantage of almost all available CGI scripts out there.

Another advantage to Apache is its ability to do Server Parsed HTML documents, a.k.a. **SPML**. SPML is a CGI-generated HTML document with certain commands encapsulated within SGML comments. Neat concept, neat implementation.

Apache also allows you to customize the error messages for added functionality. For example, you can have the web server automatically return an HTML document or create better logs. When you use Apache for each virtual host running on your web server, you can have different error and transfer log files for each virtual host you are running.

Unlike last month's SuperWeb Server by Frontier Technologies, I was able to use most every SSI (Server Side Include) I could find.

ISSUES AND PRICING

The only real problem I see with Apache is the lack of SSL (Secure Sockets Layer) or S-HTTP (Secure HyperText Transfer Protocol). However, I understand that there is a secure version currently underway. If you need an SSL or S-HTTP web server, right now, you might want to consider running Netscape's Commerce server for BSDI. That should be a great combination.

Apache, as noted, is free for the downloading. The BSDI v2.1 Internet Server sells for a suggested price of **$995**, including a 60-day money-back guarantee and free technical support period. But it does come with one of the fastest accelerated X servers available, by Xinside, which if purchased separately would be **$200**. BSDI also comes with a licensed copy of Netscape Navigator, which has a value of... who knows? Not to mention BSDI's great support!

Does BSDI have a higher cost of ownership than Linux or NT? I don't think so, by the time you factor in speed, quality and stability. BSDI is much better than any of the Linux distributions I have used (Red Hat and Slackware). BSDI v2.1 is easier to administer and is a well rounded operating system. Basically, I think BSDI is far superior to the current distributions of Linux.

However, if you have another UN*X variant, i. e., Linux, Solaris, Irix or FreeBSD, Apache is available for those as well as BSDI. I've heard there is even a port of Apache for OS/2 available.

PERFORMANCE

When it comes to performance, the Apache and BSDI combination flat out smokes on my system. But as I have said earlier, Netscape web servers running on BSDI are also faster than Netscape web servers running on Windows NT, according to Microsoft.

So if "budgeted" high performance is an issue, do yourself a favor and check out BSDI v2.1... even if you hate UN*X.◆

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CONSUMMATE WINSOCK APPS

by Forrest Stroud

The Net is exploding in amazing and unprecedented fashion, and I couldn't be happier. Critical events taking shape outside of the Net itself will go a long way towards shaping the future. Short-term success is all but guaranteed, but over the long term no one is quite sure where the Internet is headed. I can't help but believe that the Net will just keep growing larger and larger with no end in sight. With that in mind, here are five technologies that I think will have a profound influence on the prolonged success of the Net. Watch out for these products and buzzwords — as the holiday season grows near, you'll be hearing a lot more about each of them.

The applications reviewed here and many more are available on Stroud's Consummate Winsock Apps List, http://www.stroud.com and http://www.cwsapps.com.

Forrest H. Stroud is a recent graduate of The University of Texas at Austin. The Information Systems and Data Communications Management major is currently working as a full-time internet consultant in College Station, Texas. Stroud can be reached at mailto:neuroses@stroud.net.

DESTINATION PC — **http://www.gw2k.com/destination**

Gateway 2000 has pioneered the Big Screen PC concept with its Destination line of computers. A 31" monitor that doubles as your cable TV allows the whole family to watch TV and surf the Net at the same time... from the comfort of your living room sofa. Mark my words — this will be big.

DIRECPC — **http://www.direcpc.com**

DirecPC works in a similar fashion to DirecTV but allows you to surf the Net at previously unheard of speeds — up to 400 Kb can be downloaded per second. Now if only the manufacturers could combine DirecPC and DirecTV and package it with the Gateway 2000 Destination system...

ADSL — **http://www.sbexpos.com/sbexpos/associations/adsl**

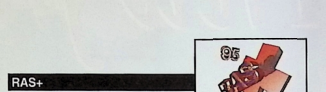
Asymmetric Digital Subscriber Line (ADSL) has the potential to be ISDN on steroids, with speeds up to 10 Mbps. Unfortunately, ADSL is currently available only in limited areas and may still be a few years away from being the next big thing on the Net.

DIGITAL CASH / E-CASH — **http://digicash.support.nl**

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A Net connection at 10+ Mb per second? I envy those who already have access to this technology and can only dream of the day it reaches Texas and I can finally kiss my 28.8 connection goodbye.



RAS+	
Desc:	Windows 95 Dial-up Networking on steroids
Pros:	Handles every aspect of getting on and off the Internet, feature-replete and easy to use
Cons:	Some users will prefer the free dial-up client in Windows 95 or will not need RAS+'s features
Location:	http://www.lambsoftware.com
Filename:	ras_pls.exe
Status:	Shareware - $29.95
Author:	Lamb Software, Inc.

RAS+ 95 takes the Windows 95 built-in dial-up networking client to new levels by adding additional power and functionality. RAS (Remote Access Services) is Microsoft's acronym for the interface and tool set designed to make communication between client and servers (supposedly) simple. RAS+ allows you to dial in to your Internet provider (or providers), run a connection script if necessary, track your online time and expenses, chat with other users, and launch your favorite Internet applications all from one interface. RAS+ even works with MS Scheduler for automatically running RAS+ at specific times and with RoboDUN for automatically connecting to the Net. In addition, no exporting or importing is necessary — RAS+ takes all its information from the Windows 95 dial-up networking client.

Additional features include Auto Dialing, number cycling and automatic redialing, direct Internet chatting, call statistics and billing information, online help, customizable WAV files to alert you when connected or disconnected, and automatic reconnection (for logging back on after being unceremoniously dropped from your provider). No other client makes the process of getting on (and off) the Net for Windows 95 users easier, and no other dial-up networking client offers the multitude of services that RAS+ does. It's a must-have client for most all Windows 95 users. Still, at just under **$30**, some users will be inclined to stick with the free dial-up client in Windows 95, even at the expense of the abundance of features offered by RAS+.

BEYONDMAIL



Desc:	A solid mail client with several next generation features
Pros:	Feature-rich client that includes WebMinder agents, hypertext support, spell checker, and more
Cons:	Lacks features like advanced filtering and distribution capabilities, automatic decoding
Filename:	**bmperevl.exe**
Status:	Free personal trial edition
Company:	Banyan Systems, Inc.
Location:	**http://www.coordinate.com**

BeyondMail is a feature-rich mail client with several unique features. The best are full hypertext support, WebMinder agents (for automatic delivery of web pages to your desktop), and auto ticklers. Additionally, BeyondMail offers many of the best features found in competitive clients like Pegasus Mail and Eudora Pro. These include an integrated spelling checker, background send and receive message polling, MIME and UUencoding attachments options, extensive searching capabilities, a message clerk (for automatic filtering of messages into designated folders), and an efficient address book management system.

BeyondMail does lack several critical features, including multiple signature files, advanced filtering and distribution list capabilities, color-coded priority tags, BinHex encoding and decoding, and multimedia mail functionality. BeyondMail is clearly a contender at this stage and could very well improve its position in the near future by adding a few additional features.

PathLink's NetRunner is a 32-bit Net suite that will run under Windows 95 or Windows NT. It offers full tables support, a bookmark management system, an extensive online manual for getting NetRunner up and running, a new window option for running multiple sessions, and nearly all other Netscape 1.x features. In fact, the NetRunner client is amazingly similar to Netscape 1.x — it sports an interface and feature-set nearly identical to those of Netscape. It does add one or two additional features not found in Netscape; at the same time it also lacks many of Netscape's features. Like Netscape, it includes built-in support for a variety of apps, including a newsreader, gopher client, mail capabilities (send only), File Transfer Protocol, and a telnet client (NetRunner uses the Microsoft Telnet client by default). In addition, it also provides a cool built-in whois client — a feature currently absent in both Netscape 1.x and 2.x.

NETRUNNER FOR WINDOWS



Desc:	Internet exploration software - a Windows 95/NT suite of integrated apps
Pros:	Features and speed remarkably similar to Netscape, a built-in whois client, tables support
Cons:	Lacks mail capabilities and many other features found in the newest web browsers
Filename:	**netr???.exe**
Status:	Shareware Light ($39) and Max-Pack ($49)
Company:	PathLink Technology Corporation
Location:	**http://www.pathlinx.com**

Features currently lacking in NetRunner include mail reception capabilities, advanced graphics rendering (256+ colors), Netscape 2.0 extensions, Microsoft Internet Explorer extensions, and Netscape's unique method of saving files in a separate process (so that you can continue to browse the web while the file is being downloaded). Another surprisingly absent feature is a lack of scrolling capability with the page up/down keys. Overall, NetRunner is so similar to Netscape that you might question the need for it. At this point, there is no real reason to use NetRunner when Netscape offers the same features (and many more), but this could change in the near future as NetRunner evolves into a stronger (and more independent) Net suite.◆

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VBScript by Scott J. Walter

THE WEB GOES BASIC

Scott J. Walter is a freelance contractor and consultant working in the Minneapolis, MN area, working with Java, VBScript, ActiveX, UNIX, Windows, C, C++, Delphi, Macromedia Director, and other budding development technologies. He is also an active author for Que Publishing, having co-authored (***The Complete Idiot's Guide to JavaScript*** for which he hosts the Website), contributed to ***Special Edition using JavaScript*** and ***JavaScript by Example***, and designed companion CD-ROMS for several other Que titles. Recently he joined Technical News Service, Inc. as a contributing editor and staff consultant. Scot can be reached via e-mail at mailto: **sjwalter@winternet.com** or through his Website at http: **www.winternet.com/~sjwalter/**

On December 4, 1995, Netscape Communications and Sun Microsystems announced the birth of a new member of the Internet pantheon: JavaScript, the first browser-based, cross-platform scripting language for the World Wide Web. Since that time, the Web has exploded with sites that jump, scroll, click, highlight, change and evolve ... all through the implementation of this scripting language.

Not to be left out of the game, Microsoft joined the fray three days later with their own scripting language: Visual Basic Script or VBScript. Like JavaScript, VBScript works from within a Web browser (in this case, Microsoft's Internet Explorer 3.0) and allows for the dynamic creation of Web pages. In this series we'll be exploring the workings of VBScript and how you can take advantage of this new language on your own website.

SO ... WHAT'S SO SPECIAL?

VBScript is built on Visual Basic and Visual Basic for Applications (VBA), the scripting subset that's part of virtually every Microsoft product. Because of this heritage, VBScript has features that make it unique in the online world, including OLE integration and error handling. Coupled with the flexibility of Internet Explorer and the HTML extensions it supports, you can create cross-platform products that rival full-blown Windows (or Macintosh) applications, without having to delve into the inner workings of the operating system.

Because of the vast popularity of Visual Basic, there's a good chance that you're already familiar with a good deal of the language. Unlike the steep learning curve of C or C++, Visual Basic makes for an excellent introduction to programming ... and VBScript an ideal introduction to Web scripting.

IMPLEMENTATION IN HTML

The **<SCRIPT>** tag is the convention for embedding a script within an HTML document, and consists of a tag pair that identifies the script block:

```
<SCRIPT LANGUAGE="VBScript">
<!— hide from non-VBScript browsers
  VBScript goes here ...
—>
</SCRIPT>
```

Notice the **LANGUAGE** attribute that identifies the scripting language contained in the block. Now that there are two scripting languages (and, no doubt, more to follow) this is an important attribute, especially since Internet Explorer also supports a subset of the JavaScript language. The **<SCRIPT>** tag block can be placed anywhere within the document (in the **<HEAD>** or **<BODY>**), and you can include multiple blocks within the same document (even mixing blocks of JavaScript and VBScript), creating pages that utilize the best of whatever browser is viewing your site.

Additionally, because browsers that don't support VBScript will simply try to format the text within the tag block for display, the entire block needs to be enclosed within an HTML comment tag (**<!— —>**). This "hides" the script from non-script browsers, yet makes it available for the VBScript interpreter to process.

DATA TYPES & VARIABLES

If you've ever worked with any other programming languages (C, C++, BASIC, Pascal, etc.) you're familiar with data types, or different kinds of data. Strings, characters, integers, floating-point (decimal) numbers, Boolean (logical) values ... all are different types. With most languages, each type has a different declaration keyword to identify the kind of data stored (**int**, **char**, **bool**, etc.). VBScript, on the other hand, has one data type: **Variant**. The **Variant** type could be considered "poly-morphic" because it adapts to suit both the kind of data stored and the kind of data requested. The different kinds of data are treated as *subtypes* of **Variant**. There are a total of 12 subtypes: Empty, Null, Boolean, Byte, Integer, Long, Single, Double, Date, String, Object, and Error. You don't need to worry about the subtype when you declare your variables, that will be taken care of automatically the first time you assign them values.

Regardless of the subtype, all variables are declared with the Dim keyword:

```
<SCRIPT LANGUAGE="VBScript">
<!—
  ' declare  a variable
  '
  Dim strDisplayString
  ...
—>
</SCRIPT>
```

This is called "explicit declaration," and is not strictly required. VBScript also supports "implicit declaration," where a variable is declared the instant it is used (if it hasn't been declared already). However, implicit declaration can cause problems if a variable is misspelled, so it's a good idea to get in the habit if

using **Dim**. You can further protect yourself from typos by forcing explicit declaration with the **Option Explicit** statement (which should be the first statement in the **<SCRIPT>** tag):

```
<SCRIPT LANGUAGE="VBScript">
  Option Explicit

  ' declare a variable
  Dim strMyString
  ...
  'The following line would generate an error
  strString = "Welcome to VBScript"
  ...
</SCRIPT>
```

As of beta 1 of Internet Explorer 3.0, the **Option Explicit** tag only works if you don't wrap the script body with a comment tag. Hopefully, Microsoft will have this corrected by the time you read this. In the meantime, you can get around this problem by using **Option Explicit** when testing pages you're developing. Once things work properly, remove the **Option Explicit** statement and wrap the script with a comment tag.

Exactly where you declare a variable controls its *scope*, or what part of the script can "see" and use the variable. Variables declared outside *procedures* (our next topic) have *script-wide* scope (or *global* scope), and are available for use by all code within the script. Any variables declared within a procedure have *local* scope, and only exist within the particular procedure. If a local variable and a global variable share the same name, the local variable will "hide" the global.

PROCEDURES

A group of VBScript statements that perform a particular function can be grouped together into a *procedure*, making calling and maintaining them much simpler. To VBScript, procedures are divided into type classes: those that return a value and those that don't. Procedures that return values are called functions, and are defined by the **Function ... End Function** statement pair:

```
<SCRIPT LANGUAGE="VBScript">
<!—
Function Cubed(value)
  Cubed = value * value * value
End Function
—>
</SCRIPT>
```

The variables specified within parentheses are parameters, values passed into the function for processing. As demonstrated, the value is returned from the function by assigning it to the function name. To call this function from inside your script, you would use:

```
result = Cubed(9)
```

which assigns the value 27 to **result**.

If, on the other hand, the procedure doesn't return a value, it's called a subroutine, and is defined by the **Sub ... End Sub** statement pair. Parameters are specified the same as for functions, but a subroutine is called by using either the subroutine name:

```
MyProcedure param1, param2, ...
```

or by using the **Call** statement:

```
Call MyProcedure(param1, param2, ...)
```

If you use **Call**, you must enclose any parameters within parentheses. If there are no parameters, use a pair of empty parentheses (as with functions):

```
Call MyProcedure()
```

Building on the previous example, Listing 1 demonstrates both functions and subroutines:

LISTING 1: CREATING PROCEDURES AND FUNCTIONS

```
<HTML>
<HEAD><TITLE>Cubing</TITLE></HEAD>
<BODY>
<SCRIPT LANGUAGE="VBScript">
<!—
Function Cubed(value)
  Cubed = value * value * value
End Function

Sub ComputeCubed()
  temp = InputBox("What number do you wish cubed? ")
  MsgBox "The cube of " & temp & " is " & Cubed(temp)
End Sub

ComputeCubed
—>
</SCRIPT>
</BODY>
</HTML>
```

This example also introduces two built-in VBScript procedures: **InputBox** and **MsgBox**. The **InputBox** function lets you get input from the user, while the **MsgBox** procedure is used to display output back to the user.

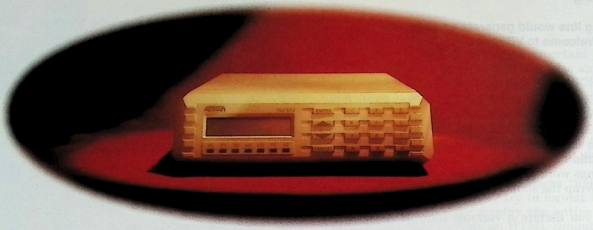
SCRIPT TRICK #1

Our first trick comes from the world of JavaScript, and shows how to create a page that is different depending on the browser ... without having to actually write any script code. Remember that when using a browser that doesn't support scripting, whatever is inside the script block will be formatted for display (hence the need for the HTML comment tag). In the "old days," customizing a web site for individual browsers required tapping into the CGI interface and writing a Perl program that created the page dynamically, based on the user's browser signature (which is transmitted to the server when a page is requested).

While VBScript is smart enough to look inside the comment tag block for its script code, it also has the side effect that once it encounters the comment-end (—>) it ignores everything else on that line. This means that you can place an empty comment (<!— —>) at the beginning of a line inside the <SCRIPT> tag and get an HTML statement that is ignored by VBScript (and the browser), but displayed by non-scripting browsers. This

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effectively creates the equivalent of a **<NOSCRIPT> ... </NOSCRIPT>** tag, and is demonstrated in Listing 2.

LISTING 2: CREATING A "<NOSCRIPT>" BLOCK

```
<SCRIPT>
<!— —>Non-Script HTML
<!— —>Use as many lines as you wish
</SCRIPT>

<SCRIPT LANGUAGE="VBScript">
<!— begin hide
  ' A VBScript browser will run this code
  ...
—>
</SCRIPT>
```

Since the text in the first **<SCRIPT>** block is intended for browsers that don't support scripting at all, we can get away with not specifying the scripting language.

Internet Explorer (IE) currently supports only a fraction (claims are about 30%) of the JavaScript language, so programming *for* IE with JavaScript is not an acceptable option in most cases. However, since Netscape Navigator is so prevalent on the Web, taking advantage of JavaScript as well is becoming more and more common. The easiest way to make JavaScript and VBScript peacefully coexist in the same page is to deactivate JavaScript if the user is running Internet Explorer. Fortunately, Microsoft has implemented the JavaScript navigator object which contains information about the browser being used, making the JavaScript fragment in Listing 3 work for both Navigator and Explorer.

LISTING 3: A NAVIGATOR-DETECTION ROUTINE

```
<SCRIPT LANGUAGE="JavaScript">
<!— begin hide
function isNetstape() {
  return (navigator.appName.indexOf("Netscape") != -1);
}
// end hide —>
</SCRIPT>
```

This function can then be used inside JavaScript blocks to "wrap" your JavaScript calls, effectively shutting off JavaScript processing for all but Netscape Navigator.

One last caveat about this trick is in order. If you try to implement both JavaScript and VBScript extensively in the same document, you'll probably run into trouble and intense frustration. Since both JavaScript and VBScript interact with HTML through "events" (which we'll look at next month), there's no way to identify which language you want to process a particular event handler (i.e. "If using JavaScript, do this, otherwise do this..."). While it would have been simpler for all concerned had Microsoft chosen not to incorporate JavaScript into IE, we as web designers have to "go with the current."

As painful as it sounds, if you want to get heavy into both languages, you'll probably have to fall back on the age-old technique of maintaining separate page trees (one for each language) with a "front-door" page (Listing 4) that guides the user to the proper version. While this creates additional work (two copies of your site), it also alleviates some of the frustration involved in trying to get three different flavors (JavaScript, VBScript, and "NoScript") of a web site to coexist within one set of documents.

LISTING 4: A GATEKEEPER FRONT PAGE

```
<HTML>
<HEAD>
  <TITLE>GateKeeper</TITLE>
</HEAD>
<BODY>

<SCRIPT LANGUAGE="VBScript">
<!—
  ' The following line forces the loading of a new page, but
  ' only if the browser supports VBScript
  '
  location.href  = "vbscript/index.html"
—>
</SCRIPT>

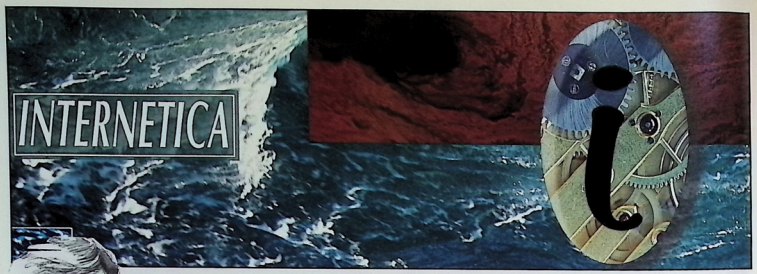
<SCRIPT LANGUAGE="JavaScript">
<!—
  // The following line forces the loading of a new page,
  // but only if the browser is Netscape Navigator 2.x or
  // greater (we don't check the version, because earlier
  // versions of Navigator don't support JavaScript at
  // all).
  //
  if(navigator.appName.indexOf("Netscape") != -1) {
    location.href = "javascript/index.html";
  }
// —>
</SCRIPT>

<SCRIPT>
<!— —><H1>Welcome!</H!>
<!— —><HR>
<!— —>This site utilizes the advanced features of
<!— —><A  HREF="http://www.microsoft.com/ie/">Internet
Explorer</A>
<!— —>and
<!— —><A  HREF="http://home.netscape.com/">Netscape
Navigator</A>.
<!— —>Download your copy now!
</SCRIPT>

</BODY>
</HTML>
```

Listing 4 takes advantage of the ability to force the load of a new page from inside the scripting language. Depending on which language is being used, the user is automatically moved to the appropriate subdirectory tree for their browser. If they are using a browser that doesn't support scripting at all, then the HTML contained in the last **<SCRIPT>** block is displayed.

Readers may type or scan the above script, or stop by **http://www.aysnews.com/vbscript/** and download a copy of the file from our site.◆





DR. BOB by Bob Rankin

PETER DEUTSCH - INTERNET PIONEER

Some people are content to cruise the information superhighway just for kicks. Others take the time to help stranded "motorists" or put up signs along the roadside. But what of those who actually laid down the pavement?

Peter Deutsch is one of those pavement pioneers who played an important role in the development of tools for finding information on the Internet. As part of a team at McGill University seven years ago, he helped to create **archie**, a tool to catalog and search for files stored on anonymous FTP sites.

Today, archie remains one of the power tools that every serious netizen keeps close at hand, and Deutsch is President of ***Bunyip Systems***, a software development and consulting firm in Montreal that among other things offers a supported commercial version of the archie software to customers around the world.



Peter Deutsch, father of Archie and President of Bunyip Systems

Deutsch is active in the Internet Engineering Task Force (IETF), the group which defines Internet standards and protocols. He also has some interesting projects underway to revolutionize the way we search for people, places and things on the Internet. He's steers a company that has grown by 100% for the last six years, so his observations on the Internet industry are worth a good look. Here are some excerpts from my recent chat with Peter Deutsch...

Doc: *On your home page you moan that since you're the president of the company, everybody else gets to have fun surfing the Net while you do all the real work. Do you consider your job fun?*

Deutsch: Actually, there's a little hidden agenda there. That's what I tell my programmers to make them feel sorry for me. Actually I love what I do — I'm doing exactly what I want to do and having a ball with it.

Doc: *Tell me about the nature of your work at Bunyip.*

Deutsch: Well, the company was founded 4 1/2 years ago, but I've gotta give you a little bit of history first. I took over as systems manager at the school of Computer Science at McGill just about the time they decided to get an Internet link. We got quite out of hand with this stuff, and since McGill is a very independent-minded place — if you want to do something and can find someone to pay for it — no one can stop you. And by the end of it, I had a team of six, almost entirely funded by outside sources.

> ***"More than half of the IPOs this year are for companies that don't make a profit. I think that's crazy."***

We created archie essentially because we needed it. Our professors were asking for specific pieces of software, so we built this tool to make it easy to find them. Other people started using it, and at one point half of all network traffic coming to Montreal went to one

Bob Rankin, known as "Doctor Bob" in the online world, is a writer, computer programmer and consultant who enjoys exploring the Internet and sharing the fruit of his experience with others. Bob is co-driver of ***The Internet TourBus*** and author of ***"Accessing The Internet By E-Mail"***, which has circulated widely on the Internet, and is available in 15 languages. Send e-mail to BobRankin@CRFV.net or visit him on the web at http://cabh.mbv.net/~bobrankin

machine in my department. It didn't become an issue until the University started paying for its own Internet link. Then they said, "You're taking away all our resources, this has to stop or you've got to find a way to pay for it." So that's pretty much what drove the company into existence.

We enjoyed doing this kind of stuff, we felt there was a lot more innovation to happen, and don't forget — this was before there was a real commercial push. In 1991 there was no (Internet) industry. We looked at the exponential growth curve, extrapolated out, and said "In two years, there's a business here."

Our first product was archie, a commercial supported version. What we're really selling is expertise. You can have the software for free — you're paying for the data feed and ongoing support. The company now does custom development, systems integration, training & tutorials. We also do a fair amount of funded research for goverment agencies and research consortiums.

We stayed out of connectivity, because we knew that would be a commodity. We stayed out of clients and software, because you get to a certain point and it becomes "who can throw a million at this problem?" We stayed away from the more traditional approaches and focused on the fact that we have expertise and we sell it. We've been very lucky with our staff — we're up to 32 people now, and we've only had three people quit on us since we formed the company.

We've grown consistently, we've never lost money because we never took outside investments. We've had no choice — we *have* to make money, and that's kind of rare in this business. I just heard on CNN that more than half of the IPOs this year are for companies that don't make a profit. I think that's crazy, myself.

***Doc:** What about these search engine sites like Yahoo that are trying to make it on advertising?*

Deutsch: There will be people who make some money on advertising, for a while, but the problem I have with the advertising model is it requires that people look at the advertising. But I know a lot of people working on agents that will send your query to twenty different sites at the click of a button. I don't care what advertising is on the Yahoo home page, because I'll never get to see it. You can't count hits from those kind of agents because they actually don't matter. I see some real problems inherent in the advertising-based model in this environment.

What I really think works is a subscription-based model. But the problem is that nobody can do it retail. I'm not going to sign up for five search engines. So what these guys are going to have to do is take the Yahoos of the world and license them to America Online and all those 2000 ISPs. That would work — wholesale works, retail doesn't.

That's what we did with archie. We've never tried to charge the end users for archie, and archie still generates a significant amount of money — it's still a profitable product for us. We sell it to people who will then redistribute the service. I don't care if they charge anything for it or not. We have a number of archies that are restricted access — if you're not one of the people who is a customer of that service, you can't use it. For about half the archies in the world, nobody knows they exist.

***Doc:** So with the rise of all the Web-based file finders, is the amount of archie traffic increasing or decreasing?*

Deutsch: Archie's traffic has actually remained very stable and quite high. We have a new version now which does web sites, and I anticipate picking up a few sales with that. What we've seen with archie is that there's still a fair amount of stuff out there in FTP, so people still like it. The other thing is that well over 50% of our archie sales are to outside of North America. Every country that has a slow speed link wants it, because it cuts down on traffic. I think there's quite a future for customized indexers and search engines.

***Doc:** I got a kick out of SEARCH.COM when I first saw it. Here's a search engine that exists only to help you find other search engines...*

Deutsch: Oh yeah, and the really scary thing is one of my guys recently told me that there are something like 300 search engines, and over 30 search engine indexers. In-dexers of indexers. I thought there'd be one or two, maybe five, but thirty? Guys... you can't all make money selling advertising!

"Having all these search engines (over 300) is the wrong way to do it."

***Doc:** We use archie to search FTP sites, and Veronica for gopherspace. Do we really need Alta Vista and Lycos and Infoseek and all the others doing essentially the same thing? Should we be moving in the direction of having one single Web index?*

Deutsch: This is why I'm so interested in the agent work that's going on. The first precursors of this are those sites that know about all the search engines, you give it the search terms, and it sends your query to all of them and presents the results. But what you've done is generated a whole bunch of hits on all these search engines that you'll never see — very wasteful. The technology is telling us that having all these search engines is the wrong way to do it. The more interesting problems, which we're looking at in our R&D group, are routing queries to the right place, and packaging up search expertise so you can pull it off the Net and run it locally.

***Doc:** Is there a good "white pages" service for the Internet yet?*

Deutsch: There are none that really work for me. We are in the process of building one with our Digger technology, so we're encouraging people to pick up the code, run it locally and tell us about it so we can index you. We're trying to make this as painless as possible, and we're also working on security extensions that will make it possible for people to update their own records. It still comes down to whether or not the individual will maintain his own records, and if not the data goes stale, and the thing will not be used. And that's not a solved problem. My suspicion is that your home page will have a bunch of tags with your name and phone number, and we'll be mining home pages to automatically keep the index up to date.

***Doc:** What do you think of the process of setting IETF standards via marketplace acceptance, like Netscape did with their HTML extensions?*

Deutsch: I'm a real fan of the free market, and I will never complain about the results of the free market. However, I will often get wistful. I have a line that I use about the HTML/HTTP group of standards — it's the DOS of the 90's. When DOS came out, it was no worse than any other operating system available at the time.

The problem is ten years later, it still

looks pretty much the same. It froze at a certain point because the marketplace was willing to pay for a certain thing, so why change it? It squeezes out the innovation that brought you there in the first place.

I feel the same way about the Web. It's actually a great thing, and I don't want to be seen as hating it because I don't. But frankly, it's a bitch to maintain Web pages. You put a URL in there, it's imbedded in the document and then you've got to go change every document when the URL changes. What I really want is URNs, where you have names instead of locators, and you look up the address when you need it.

***Doc:** Like a DNS service?*

Deutsch: Exactly, and DNS could do it. A group of researchers have proposed DNS extensions to do that. The problem, getting back to the original question, is that the marketplace thinks Netscape is really cool. They don't realize that it doesn't do query routing, it doesn't package up the expertise, and maintenance of these documents is a real bitch. HTML is an incredibly limited representation language.

Java will make a lot of this stuff obsolete, and I'm really glad it came along...

***Doc:** But will we ever solve the Java security problems?*

Deutsch: Oh, yeah! There's a friend of mine at NASA who always says, "Sure this is rocket science, but we're all rocket scientists!" I think the problems with security are a little bit overblown. Do you know of anyone who has actually lost money because of credit card theft over the Net? It is a real potential problem, but by the way, it hasn't been a real problem so far. We'll find the bugs and fix them. I'm actually not as concerned about security as I am about freezing things too soon.

I was worried about HTML for a while, but now with Java we have something where all maintenance lives in the server. If I want to make an update or a fix, I change the server and next time you run it, you get the right version. That is exactly the right model for me, and it's a programming language so I can do real live things on your machine. I think Java really saves us from being frozen too soon.

***Doc:** Is there anyone in particular who influenced your involvement with the Internet?*

Deutsch: There are some people who I would say I had very important interactions with... The original core team of developers — Brewster Kahle who did WAIS, Mark McCahill who did Gopher, Tim Berners-Lee who did World-Wide Web, and ourselves who developed that initial set of applications made people realize the Net was not just file transfer and e-mail. I think it was a very important thing that happened there — each person independently came up with a different piece that demonstrated a part of (the whole). That was a very exciting time to go through. We met all those guys every couple of months, and it was very influential to see the bouncing of ideas amongst the group. Showing people that you could do more was the important thing, and after that the rest was just implementation.

> *"The most important thing is to support the educators — there's been too much focus on getting kids on the Net."*

***Doc:** The Internet grew up out of academia, but do you think that educators have begun to understand how to use it in the classroom?*

Deutsch: I despair... I think some do, but I still hear some provinces or states saying, "We're going to put every classroom on the Net" as if that's going to solve all the problems in education. To me the most important thing is to support the educators — there's been too much focus on getting kids on the Net. My wife is a special education teacher in French, in Quebec, which is a very specialized field. What she needs is to be able to contact all the other French-speaking Special Ed teachers in Quebec, share lesson plans, etc. The Net can make the teacher's job a lot easier by being able to share information with others who have the same problems.

> *"Do you know of anyone who has actually lost money because of credit card theft over the Net?"*

***Doc:** What about these $500 network computers that are supposed to be all the rage?*

Deutsch: It's an interesting concept, but still a step away from where it starts to get interesting. To me, the $500 box is just an intermediate step where the Internet basically disappears into the box. The computer is of course connected to the Internet — what else would you do with it? We're not there yet, but that's the direction it's going. Just like the first Newtons didn't quite cut it, the first $500 boxes won't either.

I'm really looking forward to the point where the Internet technology disappears into the box, because I have a real hard time explaining to most people what I do for a living! At some point, I won't have to explain it — it'll be like television. I'll be able to say "See that image? I work in internet — I made it appear on your screen." And people will say "Okay... I can understand that."◆

Connecting With Peter Deutsch

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(514) 875-8134 fax
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http://www.bunyip.com

THE BUNYIP NETWORK RAILROAD

Bunyip Systems has created a model train you can operate via the Web, and see what's happening through a camera focused on the tracks. They built the train out of Legos to demonstrate their analogy for the way the Internet works: "We don't invent anything from scratch, we re-use components. It's how you put them together that matters." Pop over to **http://www.bunyip.com/trains** and be the engineer for a while!

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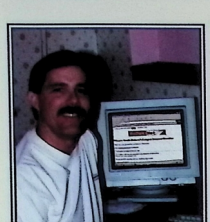
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Pat McLanahan, Founder of SoDak Net

SODAK NET: WIRING RURAL SOUTH DAKOTA

If you live in South Dakota and have local dialup access to the Internet, you can probably thank Pat McClanahan for that. Pat is an enterprising South Dakota native who was so irked by the lack of affordable Net access in his rural state, that in mid-1994 he decided to bring his own stinkin' wire into this 75,000 square mile territory.

Doing that meant stretching a T1 line 198 miles from Minneapolis, Minnesota, to Sioux Falls, borrowing money from relatives, and then stumbling into a really sweet arrangement with a consortium of local phone companies. But two years and 1000 customers later, Pat McClanahan is riding high with SoDak Net and is excited about the blossoming opportunities arising in what used to be a digital desert.

In mid-1994, there was almost nobody offering Internet access in South Dakota, and McClanahan decided it would be a good idea to bring his own line into the state. At the time, though, one had to be a member of CIX and pay a **$10,000** fee; that put a real damper on the idea. So when Karl Deninger and Joe Stroup put together Net99 in the fall of 1994, McClanahan began hounding them to get a POP somewhere close to South Dakota.

"When they opened one in Minneapolis, I jumped at the chance," says McClanahan. "I talked my sister-in-law, my brother-in-law and my parents into kicking some money in, and I had a couple of credit cards in my back pocket, so that was how we funded the startup costs. We did eventually get an SBA loan for $45,000 to finance some expansion."

Today SoDak Net is serving customers in over 130 rural communities in every corner of the state, and the customer base is growing at a clip of 20% per month. In April, McClanahan left his position as Principal Programmer at the Eros Data Center (part of the US Geological Service) and began working full-time as an Internet service provider. McClanahan says "It got to the point where my business had an opportunity to take off. So I said 'I hate to do this, but I'm outta here!'"

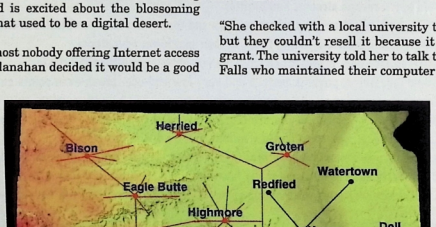
NOT A NEWBIE

McClanahan is no newcomer to the wired world. His networking experience reaches back about 15 years to when he was a civilian employee with the US Army and managed Internet access at Tooele Army Depot in Utah. From there he went to Unisys and worked on development of their TCP/IP product. He then moved on to the US National Park Service in Anchorage, Alaska doing telecom work with the remote parks and the regional office in Anchorage.

In April of 1996, SoDak Net partnered with one of its clients who had bought a frame relay connection to offer local dialup access to another community. "BASEC, an economic development group for two counties in the northeast quarter of South Dakota, was looking for somebody to put together a technical plan," says McClanahan. "So they approached this lady who had 15 years of experience as a business consultant to do that."

"She checked with a local university that had Internet access, but they couldn't resell it because it was funded by an NSF grant. The university told her to talk to this guy down in Sioux Falls who maintained their computer equipment, and it turns out that it was the guy who runs the office where I house my server and all my lines. So when she came in and said 'I want to bring Internet into Huron,' he sold her a boatload of hardware and hooked her up with me to act as a service provider."

McClanahan configured all the hardware that she bought, and when he went up to install it they told him about all the other great things they had planned to reach out to rural communities. The thing was, they had no technical expertise at all. "They didn't know Unix from a terminal server," says McClanahan. "And by the time I had made the 2-hour drive home, there was a message on my phone from the BASEC folks, asking if I would like to partner with them. They were willing to take over all the administrative duties if I would become the technical guru for the whole enterprise."



• Sodak Net BASEC Net T1's

• Rural Telco Consortium Net

"So that's what we did, and our partnership became official on April 1st of this year. We went immediately from just me running the business to about 4 full-time people now. I had been doing single dialups, but because of my partner's extensive business contacts, we've really been moving more into selling 56K and ISDN service to businesses in the area."

SoDak Net has done a good deal of work for local businesses such as South Dakota TV, Western Surety Insurance, and local real estate companies. McClanahan says one SoDak Net employee runs the local youth center from 3PM to 11PM and then pounds out Web pages until about 4 in the morning. "He taught himself HTML, got a copy of HotMeTaL Professional and now he's churning out some really good stuff!"

SoDak Net runs BSD/OS on a hardware platform of two Pentiums - a 90 MhZ machine and a 133 MhZ HP server. They have 155 USR Courier 28.8 modems for their incoming lines and McClanahan says "We've had no problems with the USR modems — none. We're really pleased with them."

BUDDIES WITH THE TELCO

When McClanahan first got the idea to start his ISP business, he was looking for a company to provide T1 service. He called US West, AT&T, and then came across a company called South Dakota Network. They didn't offer T1's, but McClanahan was curious. "When I asked what they did, they explained that they were a consortium of 15 local telephone companies that had banded together in defense against US West. They weren't doing anything with the Internet, so I signed an agreement with them whereby together we would provide local dialup access to 130 rural communities all across South Dakota."

Through some magic performed by the telcos, everybody dials a local number from which calls are actually routed back to Sioux Falls from wherever they originate in the state. The calls hit their modems, SoDak Net provides the T1 connection via a router to the modem banks, and *voila*... everybody has local dial access to the Internet. The local phone companies charge customers a nominal monthly fee for the service, and SoDak Net provides them with a variety of Internet accounts ranging from **$10** to **$30** per month. The phone companies have even pitched in inserts that go out with their phone bills. Now ain't that a sweet deal?

McClanahan says his primary reason for bringing the Internet to South Dakota was because there wasn't any decent access except for MidNet, and they were charging an arm and a leg to connect to their POP in Sioux Falls. "A lot of people were using AOL and CompuServe, but the problem there is they had to pay those access charges and long distance fees. That's why I was so excited by the agreement I made with the telephone company consortium to provide statewide access via a local call."

Having grown up in rural South Dakota, McClanahan remembered what it was like wishing he had what the people in the "big cities" had. "All I saw was people ripping everybody off for access to the Internet," he says. "I realize that AOL and Compuserve have to make their money, but I didn't see anybody else moving in a direction of making it available at a decent rate."

Since the rural phone companies had very little expertise with the Internet, they were very receptive to working with Sodak Net. The telcos were also excited about getting local schools on the Net. Now they have about 35 schools, some of which are literally out in the middle of nowhere, using their dialup service to bring the Internet into the classroom.

FRIENDS & FARMERS

Most of his customers sign up for e-mail and Usenet news, McClanahan says. Many have friends or relatives overseas and want to communicate via e-mail. Other customers are farmers who want agricultural market data and weather reports. Some of the farmers also play the futures markets, so they're interested in the information they can get from the Chicago Mercantile Exchange on the Net.

McClanahan says many farmers come to him for an alternative to something called DTN, a high-speed (384Kb) service that delivers real-time market and weather data via a dumb terminal and satellite linkup. DTN is expensive at around **$40**/month and does not provide access to the Internet.

Recently, McClanahan has also seen a lot of customers putting up web pages for their small businesses, which include tourist attractions, multilevel marketers and sellers of handmade craft items.

SPECIAL CHALLENGES

SoDak Net has its share of customer support problems, but there are special challenges when you're dealing with such a large rural area. McClanahan once traveled 50 miles to see a teacher who was complaining that his connection would drop at odd times for no apparent reason. After spending five hours with him, they determined that whenever a fax machine in the same office was powered on or off, the line would drop.

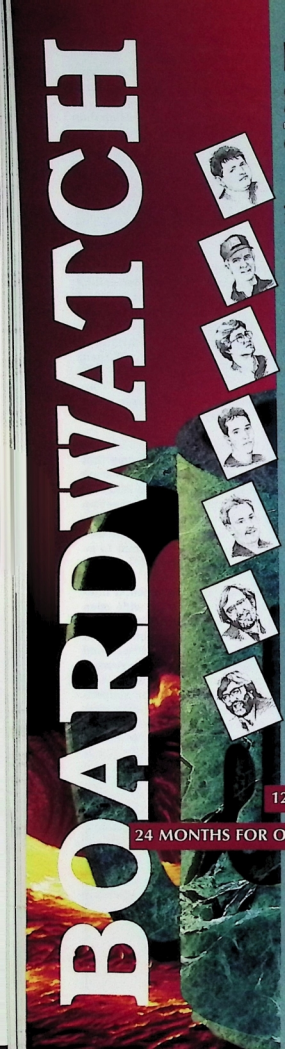
But since it would be impractical to debug problems for a customer calling long-distance across the state, and impossible to make house calls from Sioux Falls to Rapid City, McClanahan has built up a network of techies scattered across the state (many of them retired military personnel) who are willing to act as local support reps. "They make the house calls and charge whatever they like," says McClanahan.

But even the best of efforts can't solve all customer problems. "I had one guy that came from another ISP — he was my second Mac user," McClanahan said. "He didn't know enough to get things set up correctly and took to calling me at home at 1:30 in the morning to chew me out. That was too much — I told him to go back to where he came from!"

McClanahan seems to have found himself a nice little niche in a wide open space. "It's just a whole conglomeration of people who've kind of found each other," says the enthusiastic 40-year-old who is wiring South Dakota. "We're moving on out into new communities, and taking business away from our competition. It's really come together very nicely, and it's exciting. For the last few months, it's been a great ride."◆

CONNECTING WITH SODAK NET

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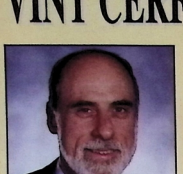
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VINT CERF: INTERNET ARCHITECT

by David Hakala



No one has done more to make the Internet possible and popular than Vinton G. Cerf. In 1973, he helped develop the first version of TCP/IP (Transmission Control Protocol/Internet Protocol), the fundamental transmission method which make things happen on the Internet. (See **http://www.isi.edu/in notes/ien/ien-151.txt.3** for Cerf's final report on that seminal project.) TCP/IP Version 4 was officially adopted in 1979, and the world forever changed.

Cerf has been the Internet's most energetic evangelist and its most influential architect. In an exclusive interview, Dr. Cerf shared with us the highlights of his career and his hopes for the future.

***BW:** When did you first join MCI and why?*

I joined in 1982 at the invitation of Robert Harcharik. I was at ARPA at the time and began to realize that I might have trouble sending my two sons to college on government pay. Harcharik had joined MCI after leaving Tymnet as president. He wanted to build a digital post office and I thought that might be fun, and I thought I knew how to do it.

***BW:** You helped design MCImail. How did its original implementation compare to your vision of the service?*

It came pretty close to the original plans — I wish I had made it more Internet compatible at the time, but this was being designed BEFORE Internet had even been deployed on the ARPANET and no one really knew what a huge impact Internet would eventually have on the commercial market.

***BW:** When did you leave MCI? What factors led to your departure?*

Around 1986, in June, I was invited by my former superior at ARPA, Bob Kahn, to join him in a new start-up called the Corporation for National Research Initiatives (**http:// www.cnri.reston.va.us**). This non-profit was focused on the technologies of information infrastructure. MCI-mail had, by that time, gotten into a stable state and new development was at a lower level than I was interested in.

***BW:** What did you do at CNRI?*

I worked with Bob Kahn on digital libraries, inter-linking of e-mail systems (notably MCImail with Internet), knowledge robots (intelligent agents), founding of the Internet Society, and occasional involvement in gigabit networks.

***BW:** What's the story behind your return to MCI?*

Bob Harcharik had retired from MCI around 1986 but was persuaded to return in 1993 to start a data and information services division. He convinced me that MCI was ready to put major resources into data and information services and, after discussing this with Bert Roberts and Dick Liebhaber, I was convinced he was right. I had spent 8 years at CNRI and was beginning to hanker after a major engineering effort that would have some impact in the form of products and services. About that time, Bob Harcharik popped up. It was very hard for me to decide to leave the R&D world, but ultimately, my interest in building commercial quality products won out.

***BW:** Please describe your current duties at MCI. Which do you find most satisfying and why?*

I am responsible for architectural design, mostly of Internet and Internet-related applications. My group also is responsible for engineering of the MCI Internet services on a global scale. What I like best is to figure out how to integrate new technologies into advanced products and services that our customers can put to work.

***BW:** What are your objectives for MCI's upgraded network?*

We want more capacity and this means use of higher speed routers, lower level ATM systems, introduction of methods for implementing varying service types within Internet (today it is mostly "best efforts" services). Real-time voice, video and multimedia interaction are all major capacity and response time challenges. Integrating multicast notions into Internet, including the use of digital one-way broadcast technology is an interesting challenge. Security and authenticity are another pair of headaches that need attention.

***BW:** What are your hopes and concerns for the Internet's future?*

I worry that we won't be able to grow the capacity fast enough, but hope that we will. I hope that the Internet will truly become a new global infrastructure for communication around the globe by the end of this decade.

***BW:** What roles will MCI and Vint Cerf play in that future?*

MCI will provide major, global backbone Internet services, advanced applications including a variety of sound, imaging, business and web related services. I hope to participate in the design of systems that enhance the utility and security of the Internet in general and the part for which MCI is responsible, in particular.

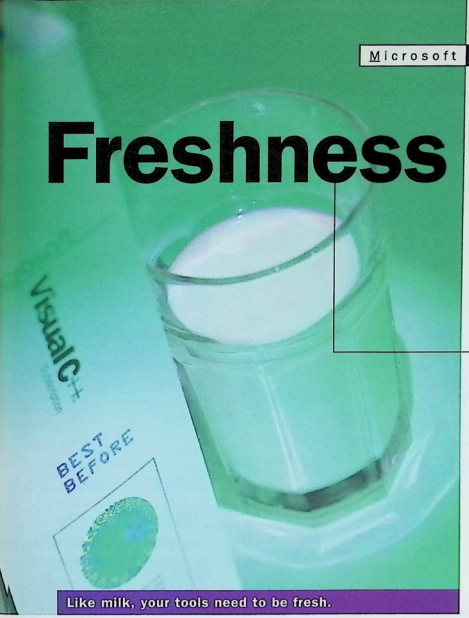
***BW:** Many of our readers are local/regional Internet Service Providers. What advice would you give them about building their businesses?*

Get prepared for an onslaught of customer demand for high capacity services, interactive services, and mixed media services. Look for toaster nets and Internet lightbulbs in the future. Understand and integrate security technology into your service offerings. Become familiar with major vendor operating systems such as MACOS and Windows in it various flavors, and learn how they support Internet applications. Work to make servers compatible with all client software. Espouse open standards, not proprietary ones.◆

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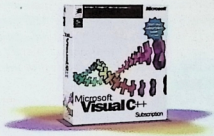


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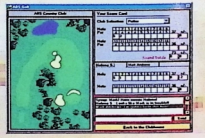
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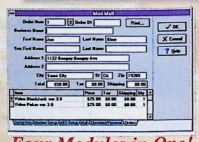




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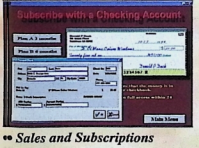
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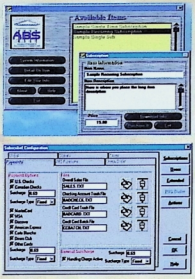
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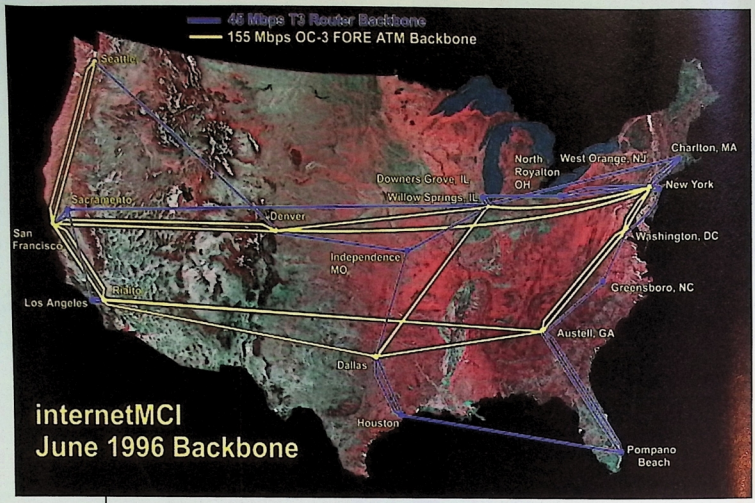
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InternetMCI - Dr. Cerf's Internet Backbone

by Jack Rickard

One of the more popular topics of conversation on the Internet today revolves around the perception that it is hopelessly netlocked with traffic and will inevitably collapse in a heap of rubble from the weight of millions of new Internauts piling on to the network with voice telephone applications, video cameras, and other bandwidth hogging implements of netdoom and destruction.

We've rather gone on record that the simplistic notion of backbone bandwidth being the culprit is simply in error, and that most of the "clog" is not in the arteries, but in the "last inch" of the Internet - at the server. Or more precisely at many popular servers where word gets out that this is the "in" place to be on the network, and several million Internauts all decide to go there on the same day. It is a bit of a problem to economically design a server that will handle 300 people a week for four months, and then jumps to 7 million people per week over the course of a weekend that included a mention on CNN. This is particularly true if after the flurry it again falls back to a couple of thousand visitors per week once the notoriety passes. And if pressed, almost any server administrator will freely admit that the problem is elsewhere, anywhere elsewhere, and the most obvious culprit to point to is "the backbone." It's a very believable lie.

That is not to say that backbone bandwidth is not an issue, or at least a potential issue. Network traffic is growing at a fairly phenomenal rate, and some packet losses at the backbone level do occur. The nature of the danger goes to the heart of the Transmission Control Protocol/Internet Protocol (TCP/IP) used to squirt data about the net. In the event of packet loss, TCP simply resends packets until they are in fact received. If packets start to get lost on an overburdened backbone, the client software starts to resend packets - adding suddenly to the traffic at the specific moment when there's a problem. The result is an avalanche of resent packets, and a rather sudden cascade into collapse. In other words, backbones tend to work very well right up to the point where they fail rather utterly. If backbone bandwidth were a problem, it would be a BIG problem with probably catastrophic results.

According to knowledgeable sources in Sprint IP Services, they have adopted the old IBM 70% capacity rule. They will upgrade the backbone from its current 45 Mbps router-based architecture when they reach 70% average load capacity. They currently are working at something on the order of 50%.

While this is probably prudent, upgrading backbones with all new switches or routers isn't something you do over the weekend. Some of these devices approach mainframe prices at $350,000 or more per unit. And they are a bit complex to configure.

InternetMCI has taken a different approach. They are vastly expanding backbone capacity without a whole lot of regard to current traffic. Traffic on the MCI backbone has grown some 5,000% since January 1995 to about 250 terabytes per month. This is 250 trillion bytes of data - approximately equivalent to nine million sets of encyclopedias or 300,000 digitized feature-length films. But spread over a hub backbone network linking some 19 cities, at 45 Mbps, the backbone is hardly burdened.

In April, 1996, MCI deployed their new OC-3 backbone. This backbone uses FORE Systems ATM switches capable of OC-12 speeds (622 Mbps). Currently, they have nine backbone nodes linked with 155 Mbps OC-3 circuits and an additional ten sites linked with multiple 45 Mbps T3 circuits. Several of the OC-3 backbone sites are actually linked with TWO OC-3 circuits for some 310 Mbps bandwidth between those nodes - including Denver to San Francisco, San Francisco to Rialto, San Francisco to Seattle, Austell to Washington DC, and Washington DC to West Orange (Newark) New Jersey. All the OC-3 is in the process of being upgraded to 622 Mbps OC-12 before the end of the year. Most of the DS-3 circuit cities are connected with at least two 45 Mbps DS-3 circuits as well.

At hub sites, MCI uses what they refer to as a dual core node design. This involves border routers that connect to customer equipment and perform the routing. The border routers also connect to core routers (Cisco 7000s) which in turn connect to the FORE ATM switch. The several core routers in each node handle backbone traffic only.

On June 26, 1996, internetMCI announced that they were upgrading the backbone again - with a $60 million investment - to OC-12 speeds of 622 Mbps by year's end. They have increased the speed of the backbone by a factor of some 13.8x, in less than a year, with no real traffic-based need for such speed demonstrated.

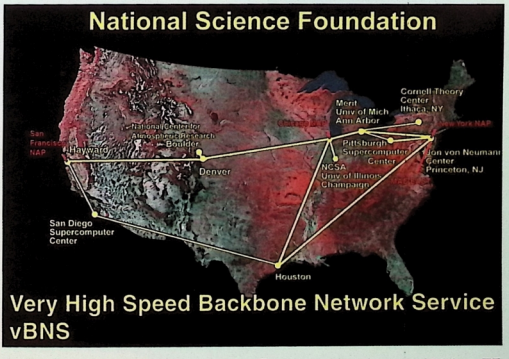
But MCI is a $15 billion company, and while backbones are expensive, you can build quite a backbone on a tiny fraction of that - if you want to. MCI wants to rather badly and there are three drivers behind this.

First, internetMCI already claims $100 million in business from their network operations. More importantly, they project some $2 billion in business from this segment by the year 2000. Beyond operating the backbone, they are again launching a consumer dialup business. They have begun hosting web sites for businesses on their network. They are working aggressively to foster Internet connectivity in our educational system. They have announced alliances with major partners such as Microsoft, Digital Equipment Corp., and Intel to develop value added services for the Internet. MCI has chosen Microsoft Explorer as the preferred browser and will promote use of NetMeeting on the network - Microsoft's voice-over-net communications program. So MCI sees a dozen ways to skin a cat in the Internet game, and intends to profit from any of them that makes sense.

Second is the vBNS. The National Science Foundation Network, NSFNet, originally was developed in 1985 to connect five supercomputer centers across the United States, including the Cornell Theory Center at Cornell University in Ithaca, New York; The National Center for Supercomputing Applications (NCSA) at the University of Illinois, Urbana, Champaign; The Pittsburgh Supercomputing Center in Pittsburgh; the San Diego Supercomputer Center at the University of California, San Diego; and the Jon von NeumannCenter at Princeton University. MCI ultimately played a role in what grew into the NSFnet backbone. MCI and IBM joined to form a company titled Advanced Network and Services, ANS. ANS was a subcontractor to Merit in the operation of the NSFnet backbone. And MCI actually provided the physical links forming the NSFnet backbone hub.

In 1995, the NSFnet backbone was shut down and the Internet relegated to private operators who interconnected at a series of Network Access Points or NAPS. InternetMCI is one of those backbone operators and they do interconnect with other backbone operators at these NAPS. But in shutting down the NSFnet, the National Science Foundation awarded another contract to build a Very High Speed Backbone Network Service - termed vBNS. Curiously, the vBNS connects five supercomputer centers - actually the same five as it so happens. And the vBNS looks like nothing so much as the original NSFnet from 1985 - but much faster. The goal is a 2 Gbps network.

The vBNS contract, as it so happens, went to MCI. And one of the more curious if vague provisoes of the contract was that the vBNS use "production" networking components. There is some conjecture as to what this quite means, but if internetMCI deploys similar technology in their commercial Internet backbone structure, it really ceases to be an issue. In fact, the vBNS backbone diagram and the internetMCI commercial backbone diagram share a lot in common - for very understandable reasons. They are separate backbones with separate equipment and physical layer transports, but a lot of similar activity occurs in the same rooms in the same buildings. There's nothing really amiss here. For convenience and economy it works.



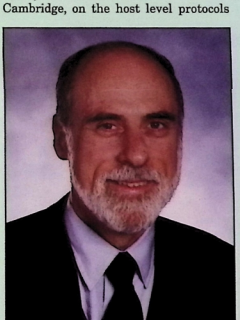


Finally, and probably the largest factor tying all this together, is one man. He's known as the "Father of the Internet" and it is unquestionably true. Vinton G. Cerf co-authored the original paper on the Transmission Control Protocol/ Internet Protocol and helped developed the ARPANET packet networks.

Most pioneers in any industry usually start something, and it quite takes off without them. In the later stages, they are usually feted at awards ceremonies and speak at dinners. But they rarely continue to be active in developing an industry. Vinton Cerf may be unique in that he has been in the heart of the fray from the very early pre-Internet days, but is also currently the lead designer of what may be the largest global Internet backbone in the world. And he's been in the middle of the development of this network every day of his adult life without surcease.

Cerf graduated from Stanford in 1965 with a bachelor of science degree in mathematics. He went to work at IBM as a systems engineer running the QUIKTRAN timesharing system in 1965. After two years, he returned to school at UCLA in 1967 and pursued his doctorate in Computer Science there - awarded in 1972.

While at UCLA, he worked with Bob Kahn, of Bolt Beranek and Newman in Cambridge, on the host level protocols for the ARPANET. ARPANET was a networking project of the Advanced Research Projects Agency (ARPA) of the Department of Defense. Bob Kahn was the chief ARPANET designer at BBN. And the entire concept of the ARPANET was to link computers in such a way, or such a variety of ways, that communications could still be accomplished in event of a nuclear attack. Then too, the cost of supercomputers was quite high and they couldn't be upgraded everywhere every year, even if you are the Department of Defense. People in the defense community needed to be able to access the newer stronger computers for their projects, and that meant remote access to be practical and economical.



Dr. Vinton G. Cerf

In 1972, Cerf went back to Stanford as a faculty member in the Computer Science and Electrical Engineering departments. Bob Kahn moved to ARPA to head packet data research programs there. It was actually Kahn who first described "internetting" as the process of connecting different types of packet networks together. Cerf worked out the design of what would be termed Transmission Control Protocol and Internet Protocol to accomplish this. Bob Kahn and Vinton Cerf co-authored a paper titled ***A Protocol for Packet Network Internetworking*** in 1974 and Cerf and his students began working out the detailed specification for TCP/IP in December 1974.

Cerf continued to work on implementing and refining TCP/IP from then until 1982. In 1976 he left Stanford and went to work at ARPA under Kahn to run the program from there until 1982. The INTERNET was rolled out in January 1983 under the auspices of ARPA.

In 1982, Cerf was at ARPA and facing the prospects of funding the education of his two sons from a government paycheck. Robert Harcharik of MCI invited Cerf to move to the commercial world to help MCI design a digital post office. Harcharik had just left his position as President of Tymnet to join MCI himself. They designed a commercial electronic mail service that became the high water mark of the day for electronic mail.

Some find it curious that the "Father of the Internet" would design an e-mail system that wasn't terribly compatible with the Internet. But according to Cerf, at the time the INTERNET as we know it was just rolling out in 1983 and no one knew the degree or direction it would ultimately grow.

In June of 1986, MCI Mail was quite stable and no new ground was being plowed there. Cerf was invited by his old boss at ARPA, Bob Kahn, to join him in a new start-up titled the Corporation for National Research Initiatives - CNRI. This non-profit research organization focused on technologies of information infrastructure including knowbots, digital libraries, gigabit networks, and interlinking of e-mail systems.

Cerf also founded the Internet Society and ran it until 1995 and headed the Internet Architecture Board (IAB).

MCI's Harcharik had retired from MCI in 1986 but was persuaded to return in 1993 to start up a data and information services division. He, along with Bert Roberts and Dick Liebhaber persuaded Cerf that they were ready to put some major resources into data and information services and would more or less write Cerf a blank check to build the network of his dreams. While Cerf enjoyed the R&D community, the prospect of building a large-scale commercial Internet network proved irresistible.

He joined MCI as Senior Vice President Data Architecture and is responsible for the architectural design, primarily of Internet and Internet-related applications. His avowed mission is for a zero-packet-loss global backbone. While he does continue to speak and promote the Internet in general, and even continues IAB work on IP version 6, the title at MCI is hardly titular. With a staff of engineers and designers, he continues to map out a global backbone with a capacity based more on his future vision than on current traffic models.

The current work revolves around the use of Asychronous Transfer Mode (ATM) switches and Optical Carrier (OC-12) fiber links at the backbone level to carry TCP/IP packets between cities with 100 Mbps ethernet and more conventional routers around the edges.

And the backbone increasingly extends beyond the U.S. borders. MCI recently joined forces with British Telecom in what they call the Concert joint venture. Concert InternetPlus services will combine the existing Internet networks of the two companies into eight new

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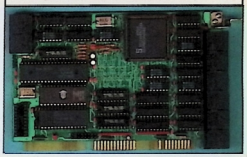
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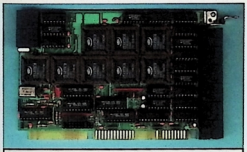
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regional "superhubs." These will expand within the year to a total of 20 hubs in key locations around the world.

The initial Concert regtional superhubs will be located in Australia, Germany, Japan, The Netherlands, the U.K., and the U.S. In addition to MCI's presence in the U.S, the Concert InternetPlus network will be offered this summer through BT's existing and planned European points of presence including Belgium, France, Italy, Spain, Sweden, and Switzerland. MCI and BT plans additional Internet hubs throughout Asia and the Americas.

MCI appears to be dedicated to reaching a lot of areas through partnering programs. With Intel, MCI recently launched network MCI WebMaker, an alli-in-one package for creating and managing web sites.

They have linked up with Microsoft to provide their consumer dialup programs in the United States. But they are also pursuing this concept overseas. In March they announced a partnership program with Videsh Sanchar Nigam Limited, (VSNL), the international telecommunications carrier for India, with three 2 Mbps internet-MCI circuits to expand Internet access in India. In August 1995 VSNL had started with a single 64 kbps link. They expanded this with a 256 kbps link to Mumbai (Bombay), a 128 kbps circuit to New Delhi, and another 64 kbps circuit to Calcutta.

The March expansion extended an individual 2 Mbps circuit to three cities - Mumbai, New Delhi and Bangalore, as well as a 256 kbps circuit to Madras and a 512 kbps circuit to Pune.

MCI also joined with Grupo Financiero Banamex-Accival to form Mexico's internetMCI de Avantel service offering Internet connections from 64 kbps to 2 Mbps to businesses in Mexico. Businesses in Mexico previously had to lease a line to a U.S. service provider. InternetMCI de Avantel claims to be the first to offer more direct connections.

U.S. BACKBONE CITIES

internetMCI maintains major backbone node sites in ninecities connected by 155 Mbps OC-3 circuits. These are being upgraded to 622 Mbps by the end of the year.

Austell, GA (Atlanta)
Dallas, TX
Denver, CO
Rialto, CA
San Francisco, CA
Seattle, WA
Washington, DC
West Orange, NJ
Willow Springs, IL (Chicago)

internetMCI has ten additional cities linked to this backbone with 45 Mbps DS-3 circuits, and in most cases multiple DS-3 circuits.

Charlton, MA (Boston)
North Royalton, OH (Cleveland)
Downers Grove, IL (Chicago)
Greensboro, NC
Houston, TX
Independence, MO
Los Angeles, CA
New York City, NY
Pompano Beach, FL
Sacramento, CA

MAJOR PEER INTERCONNECT POINTS

internetMCI interconnects at virtually all major peer interconnect points. They have announced plans to add MAE-LA, MAE DALLAS, and MAE HOUSTON to these interconnects, and have also made plans to provide additional traffic interconnects with other service providers, notably SprintLink, ANS, and UUNET as necessary.

CIX SMDS - Santa Clara
MAE-WEST - San Jose
MAE-EAST+ Washington DC
Ameritech Chicago NAP
PacBell San Francisco NAP
Sprint New York NAP (Pennsauken, NJ)
FIX-EAST College Park, MD
FIX-WEST (NASA Ames)

BUSINESS PRODUCTS

MCI offers five basic levels of business service connection to the Internet under the term internetMCI Access Services.

Dial Access — Provides dial connections to the Internet from anywhere in U.S. internetMCI Dial Access is provided via a toll free number or local dial numbers at speeds ranging from 9.6 kbps to 28.8 kbps. MCI's Dial Access service uses industry standard-based Point-to-Point Protocol (PPP). For more information or to order internetMCI Dial Access call 1 800 955-6505 for an internetMCI specialist.

Dedicated Access — Available for connecting LANs and WANs to the Internet. It provides high-speed connection options, flexibility, and technology to take full advantage of Internet audio and video resources and to perform large file transfers. For more information call (703)715-7367

International Direct Connect - Provides an international direct connection to the MCI U.S. Internet Network via a dedicated, transoceanic line.

Direct Connect — Provides a direct connection to the MCI Internet Network via a dedicated line between your business and the nearest MCI POP at speeds ranging from 9.6 kbps to T-3.

HyperStream Frame Relay — A connection to the Internet via MCI's fast packet HyperStream Frame Relay service at speeds ranging from 56 kbps to T-1.

Pricing and ordering of all internetMCI Access products is handled through a series of regional sales offices. Interestingly, MCI currently has slightly more sales offices than actual Internet points of presence. You can locate one near you at **http://www.mci.com/custsvc/office/indexoffice.shtml**.

The company has adopted a policy that somewhat distorts pricing/availability - in a positive way. Customers for non DS-3 connections pay for local loop to the nearest internetMCI "billing" point of presence. InternetMCI maintains some 500 of these "pricing" POPs. InternetMCI backhauls connections from that point to their major backbone hub nodes at their cost for all connections up to 1.544 Mbps T1. Higher speed connections are made using mileage sensitive connections to the backbone.

Major customers of internetMCI include Netscape communications and BBN Planet. Interestingly, internetMCI provided backbone services for several regional networks such as BARRnet, SURAnet, and others that BBN Planet has since acquired through purchase. BBN Planet is the backbone provider for the AT&T WorldNet service. As a result, internetMCI is actually providing backbone services, quite indirectly, to AT&T WorldNet.

InternetMCI offers a uniform discount across all direct access connections based on time. A discount of 15% for a one year contract; 17% for two years; 20% for

three years; 22% for four years; and 25% for five years. Typically, a 1.544 Mbps T1 line at $2300 per month would be discounted to $1955 per month on a one year contract.

T3 CONNECTIONS

internetMCI provides 45 Mbps DS-3 connections and currently has approximately 29 customers using this service. Pricing is based on a tiered service based on actual traffic as measured through statistical sampling performed on a five minute increment. There are seven tiers ranging from $10,000 per month to $65,000 per month.

Availability: Nationwide.
Average Installation Time: Target is 26 business days - currently running 45 business days due to backlog.
Setup: $300 (not a misprint)
Monthly: $65,000 per month maximum. Varies from $10,000 to $65,000 based on actual usage.
Recommended Equipment: Digital Link DL-3100 - $5,400 purchase or $280 monthly lease.

MULTIPLE T1 LEASED LINE ACCESS

internetMCI offers a multiple T1 connection for speeds of 3.0, 4.5, and 10.0 Mbps using the DigitalLink DL 3800 device to inverse multiplex multiple T1 connections. These connections can also be multi-homed to multiple MCI connections or even to a mix of MCI and non-MCI connections.

Availability: All POP cities
Average Installation Time: 26 business days
Setup: $300
Monthly: 3 Mbps at $6000, 4.5 Mbps at $8000 and 10 Mbps at $15000
Recommended Equipment: Digital Link DL-3800. 4 port model for 3 Mbps or 4.5 Mbps connections is $9,600 purchase or $370 monthly lease. 8- port model for 10 Mbps link is $14,000 purchase or $550 monthly lease.

1.544MBPS T1 LEASED LINE ACCESS

Availability: All POP cities
Average Installation Time: 26 business days.
Setup: $300
Monthly: $2300
Recommended Equipment: Cisco, Bay Networks, 3Comm

512 KBPS LEASED LINE ACCESS

Availability: All POP cities
Average Installation Time: 26 business days.
Setup: $300
Monthly: $2000

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Washington	DC	202-393-2834
Danbury	CT	203-207-3600
Fairfield	CT	203-255-7200
Stamford	CT	203-326-3600
New Haven	CT	203-603-8100
Hartford	CT	203-692-2000
Bridgeport	CT	203-696-6400
Waterbury	CT	203-759-3900
Birmingham	AL	205-322-4639
Huntsville	AL	205-533-6976
Tuscaloosa	AL	205-553-6627
Everett	WA	206-349-7159
Kent	WA	206-639-7200
Seattle	WA	206-777-7000
Tacoma	WA	206-798-9000
Portland	ME	207-756-7000
Boise	ID	208-333-2520
Merced	CA	209-381-2900
Fresno	CA	209-437-3400
Modesto	CA	209-557-5300
Stockton	CA	209-946-3300
San Antonio	TX	210-354-9928
New York City	NY	212-382-5940
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Fort Wayne	IN	219-439-5579
Gary	IN	219-882-0120
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Boulder	CO	303-402-4840
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Charleston	WV	304-342-0104
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Cheyenne	WY	307-633-2580
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Bloomington	IL	309-829-8811
Whittier	CA	310-464-4040
El Segundo	CA	310-725-9300
Long Beach	CA	310-989-7420
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Detroit	MI	313-230-1001
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Syracuse	NY	315-424-7430
Wichita	KS	316-337-8500
Muncie	IN	317-282-0349
Kokomo	IN	317-456-1423
Indianapolis	IN	317-639-5826
Lafayette	LA	318-289-0245
Lake Charles	LA	318-475-5946
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Davenport	IA	319-388-3180
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Bryan	TX	409-823-3577
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Pittsburgh	PA	412-565-3150
Greensburg	PA	412-850-7570
Amherst	MA	413-256-2000
Springfield	MA	413-730-6900
Milwaukee	WI	414-390-0805
Green Bay	WI	414-405-1040
Racine	WI	414-635-9300
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Chattanooga	TN	423-752-1330
Johnson City	TN	423-854-8706
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Pine Bluff	AR	501-536-3400
Fort Smith	AR	501-785-4444
Louisville	KY	502-589-2200
Portland	OR	503-225-6450
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New Orleans	LA	504-586-1010
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Santa Fe	NM	505-438-3500
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Texarkana	TX	903-794-7200
Daytona	FL	904-252-6765
Pensacola	FL	904-453-3438
Valparaiso	FL	904-729-0433
Panama City	FL	904-747-1184
Jacksonville	FL	904-791-9000
Tallahassee	FL	904-942-1624
Rahway	NJ	908-283-7447
New Brunswick	NJ	908-846-6746
Red Bank	NJ	908-933-8600
Pomona	CA	909-397-8140
San Bernadino	CA	909-421-3300
Greensboro	NC	910-333-2279
Wilmington	NC	910-392-5262
Fayetteville	NC	910-485-7973
Winston-Salem	NC	910-722-0650
High Point	NC	910-885-7725
Albany	GA	912-435-7172
Savannah	GA	912-651-8900
Macon	GA	912-752-8096
Topeka	KS	913-368-9704
Kingston	NY	914-334-2220
White Plains	NY	914-397-6200
Poughkeepsie	NY	914-485-7370
El Paso	TX	915-545-4555
Abilene	TX	915-738-0250
Redding	CA	916-242-9300
Sacramento	CA	916-375-3200
Marysville	CA	916-821-5000
Chico	CA	916-899-4900
Tulsa	OK	918-582-1270
Rocky Mount	NC	919-442-7077
Durham	NC	919-572-6600
Raleigh	NC	919-876-5252
Chapel Hill	NC	919-929-4979
Greenville	NC	919-931-0061
Fayetteville	FL	941-261-6241
Fort Meyers Bch.	FL	941-332-7853
Sarasota	FL	941-362-9891
Lakeland	FL	941-551-9506
Grand Junction	CO	970-256-3600
Ft. Collins	CO	970-282-6300
Greeley	CO	970-346-2040

Recommended Equipment: Cisco, Bay Networks, 3Comm

256 KBPS LEASED LINE ACCESS

Availability: All POP cities
Average Installation Time: 26 business days.
Setup: $300
Monthly: $1700
Recommended Equipment: Cisco, Bay Networks, 3Comm

128 KBPS LEASED LINE ACCESS

Availability: All POP cities
Average Installation Time: 26 business days.
Setup: $300
Monthly: $1500
Recommended Equipment: Cisco, Bay Networks, 3Comm

56 KBPS LEASED LINE ACCESS

Availability: All POP cities
Average Installation Time: 26 business days.
Setup: $300
Monthly: $1000
Recommended Equipment: Cisco, Bay Networks, 3Comm

CONSUMER PRODUCTS

As part of MCI Internet 2000, the company plans to significantly grow the number of consumers using its' Internet. MCI said it now offers customers free Internet software and a choice of dial-up service options. MCI consumer long distance customers are eligible to receive five hours of free Internet service a month with each additional hour costing $2.50 or unlimited monthly Internet access for $19.95.

MCI's dial-up Internet service is available to customers at modem speeds up to 28 kilobits per second with customer support available 24 hours. The software and service can be ordered by calling MCI at **1-800-550-0927.**

28.8 KBPS DIALUP CONNECTIONS

InternetMCI Standard Offering
Availability: See 28.8 kbps Dial-up POPS list.
Setup: No charge
Monthly: $9.95
Hours Included: 5
Additional Hours: $1.95
Toll Free 800 Surcharge: $5.95 per hour
Recommended Equipment: 28.8 kbps V.34 modem - any brand

InternetMCI - Unlimited Access
Availability: See 28.8 kbps Dial-up POPS list.
Setup: No charge
Monthly: $19.95
Hours Included: unlimited
Additional Hours: N/A
Toll Free 800 Surcharge: $5.95 per hour
Recommended Equipment: 28.8 kbps V.34 modem - any brand

FUTURE EXPANSION PLANS

MCI has announced a new Internet partner marketing program aimed at reaching more of the mass market for its Internet services. MCI said First Union National Bank is one of a number of companies it has teamed up with to offer consumers MCI's Internet services through various media, including CD-ROM disks, containing MCI's internetMCI software.

MCI announced it would mass market its Internet service with the Microsoft Network (MSN) Internet/online service this Summer. As part of MCI Internet 2000, the company will expand its local dial-up Internet service to reach 250 U.S. cities by Summer and cover 300 U.S. cities by year-end. InternetMCI believes these 300 POPs will provide a local connection to 85% of the U.S. population. In addition, MCI said today it will offer customers high-speed ISDN Internet access by May 1996.

MCI predicteds half of their Internet revenue by the year 2000 will come from value-added applications and the development of emerging Internet applications.

MCI said it will aggressively expand its marketing of the Internet services it provides businesses such as web page hosting, secure commerce, content creation, and intranet managed services.

MCI also announced it has formed an advanced applications unit to focus on developing emerging Internet applications for its customers. The new unit will report to Fred Briggs, MCI's chief engineering officer, and Vint Cerf, MCI's senior vice president of data architecture. A few of the technologies under development include the use of direct broadcast satellite for high-speed Internet connectivity, videoconferencing over the Internet, shared applications, multi-media messaging and advanced security.

MCI also intends to expand their backbone to include 11 new cities including Minneapolis, Portland, Honolulu, Oceanside, Chattanooga, Tacoma, Ft. Worth, El Paso, Hackensack, New Brunswick, and New Haven. The backbone will be upgraded to 622 Mbps OC-12 speeds starting at the end of 1996. InternetMCI is rumored to be working on a new transatlantic fiber cable for Internet backbone services funded by a number of Internet Service Providers.◆

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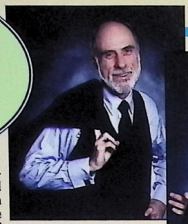
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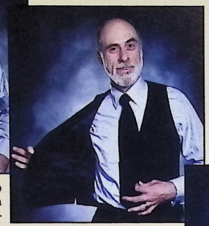
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The REAL Story of "The T-Shirt"





Vint Cerf is an Internet legend; so is his T-shirt, featured on our cover and wherever else we could find an excuse to insert it this month. "The legend of Cerf's Shirt" is often cited in mainstream journals such as ***American Heritage*** as an example of how informal and visionary those wild and crazy Internet inventors were. Invariably, the details are sketchy and they get the slogan wrong: "IP Everywhere" or "IP IN Everything." Even Robert Seidman, author of our favorite e-mail newsletter (see **http://www.clark.net/pub/robert**), got it wrong, though he had the grace to publish a correction.

Dr. Cerf was pleased to set forth for us the entire story:

"The shirt came from John Garrett, at the time (1991) a coworker at CNRI. I had often quoted the idea for a T-shirt that said 'I P on Everything' because that has been my guiding philosophy for 25 years. He made the T-shirt and gave it to me, for Christmas, I think, or perhaps a birthday (June 23 — same as Alan Turing!).

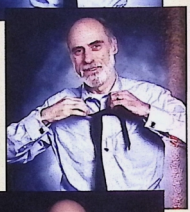
"In the 1991-1992 time frame, the Internet community was extremely concerned that we were going to run out of ability to handle large routing tables and therefore the Internet would stop functioning. It was also a concern that the actual address space would also run out.

"The Internet Architecture Board (formerly Internet Activities Board) met in Kobe, Japan at the first Internet Society Annual INET meeting, to consider the options. At that meeting, the IAB concluded that a straw proposal to base a new IP header on the Connectionless Network Protocol (CLNP) format would be worth further exploration. CLNP was the OSI version of IP (IP had been brought to OSI by several in the Internet community but it was modified by the OSI group to have a larger address space and other features)

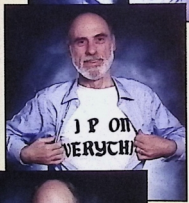
"Unfortunately, the way the proposal was conveyed to the IETF left many, if not most, thinking that the IAB had declared that CLNP was the correct choice. For many in the IETF, this amounted to the speech by Chamberlain prior to World War II. The IETF revolted. The July IETF meeting was thus poised to be a seething mass of insurrection.

"Worse, the then-current IAB chairman could not make it to the IETF meeting (and had been one of the key people persuading OSI to adopt IP). So the July IETF threatened to open to burning torches and raging members.





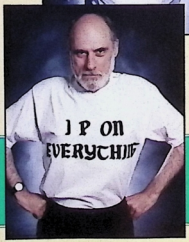
"I thought it was important to re-affirm the commitment of the IAB to the Internet Protocols and offered to make some opening informal remarks (on July 13, 1992). To underscore the informality, I decided to remove a number of articles of clothing. You have to realize, I had been wearing three piece suits for years to these IETF meetings where most, if not all, (of) the attendees tended to be dressed in T-shirts and cutoffs. My odd behavior was tolerated, probably because of my long connection with the Internet. Thus, removing my coat, tie, waistcoat and dress shirt represented a fairly startling action.



"By the time I got down to the T-shirt, which read "*IP on Everything*," Steve Knowles (then with FTP Software), ran up and stuck a $5 bill in the waistband of my trousers.

"Although this action in itself would not resolve the debate, I hoped that it would break some of the tension and open the way for more reasoned discussion.

There you have it: the TRUE story of an Internet legend, brought to you with all the gory technical details as only ***Boardwatch Magazine*** would presume to do! But we're not through with The Shirt yet. ◆



Digitally remastered, museum-quality replicas of The Shirt will be on sale at our booth during this year's ONE ISPCON, in San Francisco's Moscone Center, August 7-10. Don't miss this chance to own the Ultimate Internet Know-It-All T-Shirt; amaze your friends and humiliate newspaper reporters! $19.95 plus $4 shipping and handling — 800-933-6038

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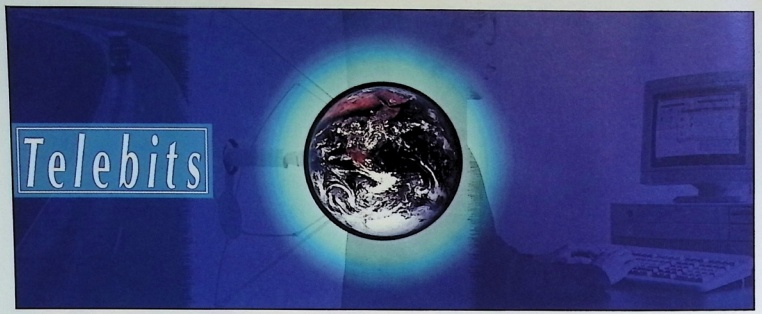
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20 Megabyte Disk Space	In order to create a professional, full featured web site you need a large storage area to work with.
Graphical HTML Editor	Point and Click intuitive interface makes MYSITE easy to use. Just point and click to create fantastic home pages.
Detailed Visitor Reports	Full featured reports so that you can analyze the success of your web site, hits, visits, throughput, top 10 files, etc.
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DR. ROBERT METCALFE AWARDED IEEE'S HIGHEST HONOR

Dr. Robert M. Metcalfe received the IEEE Medal of Honor from the Institute of Electrical and Electronic Engineers for his leadership in the development and commercialization of Ethernet. Metcalfe holds four patents on the Ethernet design, which he invented in 1973. He earned a Ph D. from Harvard University for research done at MIT's Project Mac on packet-switching in the ARPANET and ALOHA computer networks. Dr. Metcalfe has been a seminal evangelist of personal computing and networking since 1979, when he founded 3Com Corp. Presently, Metcalfe is ***Infoworld Magazine's*** executive correspondent and VP of Technology, and a perennially popular speaker at ONE ISP-CON. Metcalfe will present the keynote roundup address, "The Imminent Collapse of the Internet," at this year's ONE ISP-CON in San Francisco, August 7-10.

BBS/INTERNET PAGING DEVELOPERS KIT

BBS operators and ISPs can add new revenue sources and receive warnings of system malfunctions with the help of PageMart's wireless messaging Software Development Kit (SDK). The kit, available in DLL and Visual Basic formats, facilitates programming of digital pager applications for Internet and BBS servers. Paging a user when e-mail arrives for him is easy; the SDK also permits applications that filter messages on an if/then basis, so that the user is only paged for messages from specified persons, or messages containing certain keywords. Sysops can receive a pager alarm when nodes or modems fail, or when a power reset occurs, complete with a diagnostic message. Applications can also be written to let users send e-mail messages to any alphanumeric pager using SMTP. The 16-bit version costs **$275** while the 32-bit version costs **$475**. PageMart Nationwide: 6688 N. Central Expressway, Ste. 800, Dallas TX 75206. **(800)324-7780** or **(214)750-5809** voice, **mailto:develop@pagemart.com**

LIVINGSTON CUTS ISDN B CHANNEL COST TO $263

The PortMaster 2E Communications Server comes with five ISDN BRI ports or 10 asynchronous serial ports. Two expansion slots allow growth to 15 BRI ports (30 654 Kbps B channels), 30 115.2 Kbps asynch ports, or any combination of ISDN and asynch ports. The basic PortMaster 2E lists for **$3895**; fully configured with 15 BRI ports, it costs **$7885**. The Portmaster 2I Communications Server (**$3495**) comes with 5 BRI ports and one asynch port. Each B channel can be used individually or all five can be combined using the Multilink PPP protocol to achieve a 640 Kbps pipe. Both products are available in S/T or U configurations with integrated NT1 network termination devices, and include one Ethernet port for switch-selectable, thin Ethernet or AUI interfaces. Livingston Enterprises Inc.: 6920 Koll Center Pkwy., Ste. 220, Pleasanton CA 94566. **(800)458-9966** or **(510)426-0770** voice; **mailto: info@livingston.com** or **http://www.livingston.com**

DIGEX OFFERS 400 KBPS INTERNET ACCESS VIA DIRECPC SATELLITE SERVICE

DIGEX™

Small businesses and home offices, especially those for whom dedicated-line mileage charges are burdensome, may find a bargain in DIGEX, Inc.'s **$99**/month 400 Kbps Internet delivery service. Basically, DIGEX is reselling the DirecPC satellite-based system made by Hughes Network Systems and described in our June, 1995, "Telebits." Users can receive Internet traffic at 400 Kbps via a **$1099** system that includes a 21-inch VSAT dish and



PC interface. Outbound traffic travels at normal wireline speeds, i. e., 28.8 Kbps modems, ISDN's 128 Kbps or a lease-line circuit. DIGEX, Inc.: 6800 Virginia Manor Rd., Beltsville, MD 20705. **(301)847-5000** voice; **http://www.digex.net**. Hughes Network Systems: **mailto:info@mail.direcpc.com** or **http://www.direcpc.com**

KEYSPAN'S SMART SERIAL 6 PCI CARD

The Apple Remote Access (ARA) Multiport Server 2.1.1 PCI version will sport Keyspan's Smart Serial 6 high-speed serial communications cards, under a joint marketing agreement announced by the companies. Each Smart Serial 6 card can support up to six remote sessions using the AppleTalk protocol. A single Mac 9500 can support up to 30 simultaneous sessions, at a cost lower than the older Nubus technology. The Smart Serial 6 is also available separately for **$539**. Keyspan, a division of InnoSys, Inc.: **(510)222-0131** ext. **102** voice; **mailto:keyspan@aol.com** or **http://www.keyspan.com**

MOTOROLA CUTS MODEM PRICES

The ***Montana*** data/fax modem's price drops from $329 to **$289**, while the 10Base-T and 10Base-2 compatible ***Mariner*** drops from $515 to **$469**. Both modems feature 28.8 Kbps data and 14.4 fax, compatibility with Motorola cell phones and two-way pagers, and come bundled with QuickLink Mobile data/fax software package, Netscape 2.0, CompuServe and America Online. The OnlineSURFR internal 28.8/14.4 Kbps data/fax card drops from $260 to **$212.50**; it comes with CompuServe; America Online; Spry's Mosaic Web browser; e-mail software; Newsreader software; FTP and Gopher clients; and ***The Web Explorer Companion***, a 250-page book detailing how to use the Internet. Motorola's Premier 33.6 external desktop modem will drop from $495 to **$386**, while the internal model goes from $470 down to **$361**. Motorola Information Systems Group (ISG), Mobile Computing Products Division and Transmission Products Division: 5000 Bradford Drive, Huntsville, AL, 35805-1993. **(800)426- 6336** or **http://www.mot.com/modems**

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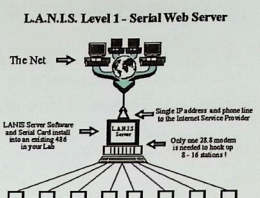
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ASAP WEBSHOW MULTIMEDIA WEB TOOL KIT

Touted as "the fastest and easiest solution for creating, viewing and hearing presentations on the World Wide Web," the ASAP WebShow™ Presentation Kit includes Software Publishing Corp.'s WordPower™ which can transform word processor or text documents into HTML presentations and import PowerPoint 7.0 graphics. The Realaudio™ Personal Server, Encoder and Player add audio-on-demand sizzle to presentations. "Complex presentations can be generated using ASAP WordPower, and by using a single line of HTML code" be embedded in a Web page, according to SPC's Joe Szczepaniak, VP of marketing and sales. Designed for users with no graphic arts training, the package is priced at **$129**. Software Publishing Corp.: 111 No. Market Street, San Jose CA 95113. **(408)537-3000** voice; **http://www.spco.com**

L. A. N. I. S. LOW-COST NET-IN-A-BOX

Small offices, schools and libraries can connect up to 16 PCs to the Internet using one IP address and a single modem without Ethernet cards, thanks to the L. A. N. I. S. Software Server software package. One PC – at least a



486/66 – acts as the server, containing the L. A. N. I. S. software, a modem and a multiport serial card. Other workstations connect to the server using ordinary serial ports and cables. The server houses a software router, Web server and POP e-mail server. Up to 64 workstations can be connected using Ethernet. The system comes with an offline Internet/Intranet training program to help newbies learn to surf. At **$1950** to **$2450**, this simple, reliable and inexpensive Internet solution is very popular with budget-strapped organizations. Vision Net Communications: 143 Riverstone Court S. E., Calgary AB Canada T2V 3W7. **(403)236-0591** voice, **http://www.v-net.com**

ROADRUNNER.COM KEEPS ITS DOMAIN NAME

In May's Telebits we reported Roadrunner Computer Systems' lawsuit against Network Solutions, Inc. (NSI), challenging NSI "arbitrary and capricious" policies concerning resolution of domain name/trademark disputes. On May 21, U. S. District Judge T. S. Ellis dismissed the suit at Roadrunner's request, after NSI struck an agreement "not to interrupt Plaintiff Roadrunner's use of the 'roadrunner.com' domain name unless and until the Court enters an Order directing or permitting Defendant NSI to curtail Plaintiff Roadrunner's use of that domain name." The dismissal leaves undecided the propriety of NSI's policies and the question of whether NSI's July 1995 domain name policy applies to domain names that were registered before its effective date. For more information about this case and other domain name disputes, see the "What's In a Name?" site at **http://www.law.georgetown.edu/lc/internic/domain1.html**

NEW MONTHLY READERS' CONTEST:

Amaze your friends, split your sides laughing and win a FREE ***"Billgatus of Borg"*** or ***"IP On Everything"*** T-Shirt! All you have to do is send us your funniest

TRAGICALLY *TRUE* TECH SUPPORT TALES!

The unsung heroes of the computing and Internet industries are those patient, long-suffering people at the Help Desks. We plan to honor them every month in this special feature, and share some of the most hilarious, bizarre stories you've ever read. For example, here's one from a Novell NetWire sysop:

Caller: *"Hello, is this Tech Support?"*

Tech Rep: "Yes, it is. How may I help you?"

Caller: *"The cup holder on my PC is broken and I am within my warranty period. How do I go about getting that fixed?"*

Tech Rep: "I'm sorry, but... did you say a cup holder?"

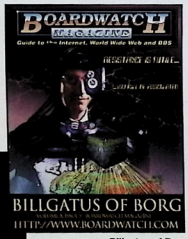
Caller: *"Yes, it's attached to the front of my computer."*

Tech Rep: "Did you receive this as part of a promotional, at a trade show? How did you get this cup holder? Does it have any trademark on it?"

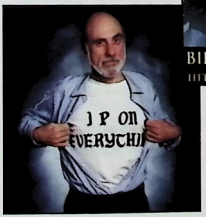
Caller: *"It came with my computer. I don't know anything about a promotional. It just has '4X' on it."*

At this point, the Tech Rep had to mute his speaker, because he couldn't stand it any longer. The caller had been using the drawer of the CD-ROM drive as a cup holder, and snapped it off the drive!

If you have a similar howler, send **mailto:david.hakala @boardwatch.com**. Include specifics: dates, names, product brands, etc. Be sure to *include your full street address* – if we print your war story, we'll mail you a free T-shirt.



Billgatus of Borg



Vint Cerf in "IP" shirt

EASYPHOTO $239 COLOR SCANNER

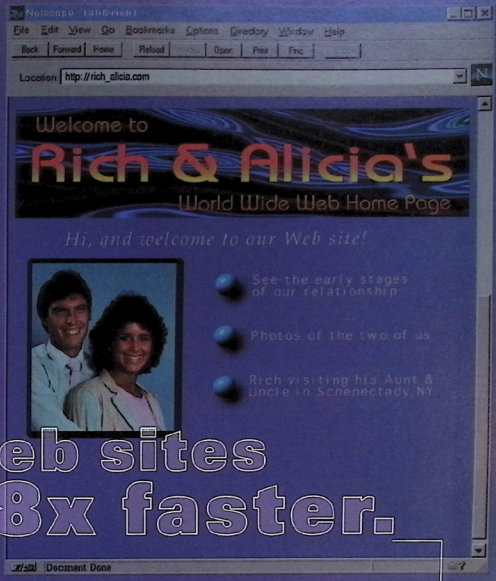
Amateur image producers will love this inexpensive, 1200-dpi color scanner from Storm Primax, Inc. Just plug it into a parallel port, install the EasyPhoto software and start scanning color photos of up to 5" x 7". An editing program called Photo Workshop lets you remove scratches, adjust hues and eliminate "red eye" from flash photos. Then you just drag a photo to a document and drop it in. You can also create personalized screensavers, slide shows and photo galleries. Available through Circuit City, Comp USA, Egghead and other national computer stores, the EasyPhoto scanner is also installed in a 5.25" drive bay in HP's new Pavilion line of multimedia PCs. The PhotoDrive product will be available to end users in early August, at a price of just **$199**. (Any enterprising college student can earn that back from the newsgroups in a month!) Storm Primax, Inc.: 1861 Landings Drive, Mountain View, CA 94043. **(415)691-6600** voice, **http://www.batnet.com/storm**

PLACE YOUR BETS ON THE ELECTIONS

Clinton vs. Dole may be a sucker bet, but what about your local Congressional race? Do you even know what horses (or parts thereof) are running? ***The Political Oddsmaker*** at **http://www.camelect.com** is published by ***Campaigns and Elections*** magazine, a nonpartisan politcall trade monthly. It sets the odds of ultimate victory for candidates in the Presidential, U. S. Senate, House, gubernatorial and key state and local contests. The odds are based on voting history; general electoral trends; current polls; "extensive interviews with national, state and local political consultants, campaign staff, pollsters and part leaders." In late June, Clinton was the 2:3 favorite while Dole ran a distant 7:3 second. Ross Perot had a 20:1 shot. Al Gore was a 100:1 dark horse. ◆







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CYBERWORLD MONITOR

Frank X. Sowa

IT'S B-A-A-CK! CLIPPER REARS ITS UGLY HEAD AGAIN

The Administration's "Clipper" proposal, a government-sanctioned encryption policy, keeps rearing its misshapen head in the nation's Capitol.

In May, the Clinton White House unveiled a new position paper, "Achieving Privacy, Commerce, Security and Public Safety in the Global Information Infrastructure (GII)." The new policy paper was almost immediately dubbed "Clipper III," because it once again touted a "new and improved" encryption policy proposal which would use a government-sanctioned key certification system as an incentive to virtually impose key escrow on domestic users.

Frank X. Sowa is president of The Xavier Group, an international consultancy providing strategic planning, forecasting, training, and development of business and communications systems for organizations since 1981. As a certified software consultant for Softarc's First Class, and a reseller for other companies, he configures customized BBS systems for organizations, complete with "regular content updates." Sowa is also founder and sysop of SEED.NET (412) 487-5449, "the online incubator" for small businesses, a seamless BBS-to-Internet (PPP) provider, with business start-up assistance and seed capital available online. mailto: frankxsowa@xavier.seed.net

The draft proposed a "public key infrastructure" for encryption similar to an infrastructure proposed by the European Community, Canada, Great Britain, and other world trading partners. Such a public key infrastructure would enable users to clearly identify the people they are communicating with and facilitate key management. In industry, this is widely viewed as an important component of a secure and trusted communications environment that would promote online commerce.

Incorporated into all telecommunication devices, this public-key infrastructure would permit secure encrypted communications that could be intercepted by law enforcement and intelligence agents who obtained court-approved access to the keys necessary to decrypt any conversation transmitted in the U.S.

In this new draft, the Clinton Administration has tried to woo the critics of Clipper by allowing non-government key escrow centers. A copy of the Draft proposal is available through The Center for Democracy and Technology, a non-profit public interest organization based in Washington, DC. A complete version of the draft is available from the CDT on the Web at: (**http://www.cdt.org/crypto**).

CRITICS' OBJECTIONS

Critics are concerned for several reasons:

- The new Clipper concept is hardly voluntary. Key-escrow would become a prerequisite for participation in any Federal contracts or any overseas trade as a part of the Global Information Infrastructure (GII).
- The proposal contains few guidelines for how (or if) keys would be shared with foreign governments, or to what extent the Administration could make use of the policy via a National Security Executive Order to spy on its own citizenry. The lack of coherent controls could allow the president to use Clipper technology to thwart political foes or investigative reporters, much in the same way the Clinton administration recently ordered FBI dossiers on 400 citizens, violating privacy laws.
- The proposal encourages the collection of highly sensitive private key information, and clearly violates privacy rights which should be protected by the U.S. Constitution. In fact, the proposal does not address major privacy concerns such as liability for key holders, limitations on law enforcement access, audit requirements, and other concerns that many have already identified as crucial to protecting individual privacy even in a voluntary key escrow system.

Many of the critics further contend that this recent effort by the Administration does not meet the privacy and security needs of Internet users or the demands of the marketplace. The Clipper III proposal, like its predecessors, continues to put law enforcement and national security concerns above the privacy and security needs of the American public.

FREEDOM AND PRIVACY HELD HOSTAGE

Clipper III would establish the public-key encryption infrastructure at a price that the government feels is "justified." It would demand that all users of the public key infrastructure in the U.S. would ensure government access to their encryption keys through an approved key escrow authority. It would also allow law enforcement agencies, providing they have been given the "proper legal authority (court provided warrants, presidential executive orders, etc.)," to intercept the private communications originating from a device with a Clipper Chip.

The government argues that "if the NSA has designed a cryptographic system that it is willing to certify as secure and make available to the American public, the government is justified to take steps to prevent that cipher from being used against it by criminals and foreign governments." It is "reasonable for the government to request, and in some cases require, that private persons communicate in a manner that makes interception by the government at least practical and preferably easy," according to the Administration's May announcement.

The ability to listen in to the private conversations of Americans has always been a cherished tool of law enforcement agencies and the intelligence community. Digital telephony and telecommunications with easily-accessible cryptography is threatening the government's ability to eavesdrop on citizens.

FBI SAYS CLIPPER WILL FIGHT PORNOGRAPHY

FBI Director Louis Freeh, in explaining this latest attempt to introduce Clipper, tried to paint a lurid picture of a government and citizenry being held hostage and victimized by despicable online pornographers, drug dealers, terrorists, and child molesters "who are conspiring via the Internet using unbreakable encryption ciphers." In this latest spin, the Administration said that these "criminals" are "storing their records and child pornography in computers that have become virtual cryptographic fortresses."

Freeh says that local, state, and federal law enforcement agencies are "helpless," having been stripped of an essential crime-detection and evidentiary tool – wiretapping — by new technological breakthroughs. Clipper, he argues, is crucial to effective law enforcement. "If the FBI and local police lose their ability to tap telephones" because of the widespread use of strong cryptography, the "country [would] be unable to protect itself against terrorism, violent crime, foreign threats, drug trafficking, espionage, kidnapping, and other crimes," Freeh said.

NSA: CLIPPER IS ESSENTIAL TO NATIONAL SECURITY

Meanwhile, the intelligence agencies, led by the National Security Agency (NSA), have also joined in. They argue that existing policies "have proved ineffective in preventing the increasing use of unescrowed encryption, and suggest that their proposals should be adopted to prevent developments that might undermine the nation's communications intelligence capabilities."

The NSA, which has convinced presidents since Harry Truman to protect this nation's cryptography and codes as a "munition" — just like nuclear missiles — is troubled that "where the NSA once drove technological developments, these are now being driven by the commercial sector." According to "Preparing for the 21st Century: An Appraisal of the Intelligence Community," a report by the Commission on the Roles of the United States Intelligence Community (**http://www.access.gpo.gov/int**) "the broader use of encryption technologies, especially software encryption, and the commercial pressure to limit or end export controls on such encryption, constitute a serious threat to the NSA's ability to produce quality signals intelligence in the future."

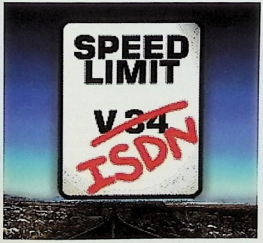
What the NSA doesn't tell you in their arguments is that while the software itself is controlled as a "munition" and its executable code cannot be legally exported, source code in printed form within a book does not seem to face the same restrictions. Sample cryptographic computer codes are widely available for export from the U.S.

Schneier's ***Applied Cryptography*** book can be exported, for example, but the diskette in its back sleeve that contains the same source code as is listed in the book is considered a U.S. government "secret."

ENCRYPTION EXPORT CONTROLS COST MILLIONS

The software industry is acutely aware of the cost of export control, and has been actively lobbying for its reduction or elimination. Under current federal law, U.S. companies cannot export encryption programs that use keys longer than 40 bits. Computer experts say that 40-bit encryption systems are easy to break, and provide little security. To support their arguments they point out that while the U.S. protects less secure DES 40-key and 56-key algorithms, the Swiss and others are making 128-key encryption algorithms available.

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As a result, many software companies that sell their products worldwide do not build in sophisticated encryption features. Industry experts say that this costs them millions of dollars in sales, as customers in foreign countries buy encrypted software made outside the United States.

But cryptography also contributes to an area of far greater monetary value: online commerce. Public key cryptography enables digital signatures that verify the authenticity of a document, confirm the authorization of the sender, and precludes repudiation of the transaction — all critical components to financial transactions. Many companies feel that if the encryption controls aren't lifted soon, online commerce will die before its time. The industry advocates point out that such a downturn could lead to a worldwide depression.

Software companies are also urging the administration to abandon efforts to force businesses and individuals to use "key escrowed" encryption software. Recently, they received additional support from an unlikely source — the government itself!

NATIONAL ACADEMY OF SCIENCES SUPPORTS ELIMINATION OF ENCRYPTION EXPORT CONTROLS

Countering encryption efforts by the Clinton Administration, export controls on cryptography should be relaxed, with national cryptography policy closely aligned to market forces, according to a major report released by the National Research Council.

The report, "Cryptography's Role in Securing the Information Society," was produced by the Computer Science and Telecommunications Board of the National Research Council. The National Research Council is part of the National Academy of Sciences.

In its report, the NRC said the government should promote the commercial use of encryption software to help cut down on the theft of computer data and other electronic communications. It said encryption software is essential for businesses and individuals who need to transmit confidential data using the Internet or cellular telephones. "On balance, the advantages of more widespread use of cryptography outweigh the disadvantages," the report said.

The main recommendations in the report included:

- No law should bar the manufacture, sale or use of any form of encryption within the United States;
- National cryptography policy should be developed by the executive and legislative branches on the basis of open public discussion and governed by the rule of law;
- National cryptography policy affecting the development and use of commercial cryptography should be more closely aligned with market forces;
- Export controls on cryptography should be progressively relaxed but not eliminated;
- The US government should take steps to assist law enforcement and national security to adjust to new technical realities of the information age; and
- The US government should develop a mechanism to promote information security in the private sector.

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WHAT IS REALLY BEHIND IT ALL?

In reality, the FBI and the NSA have a problem. The salaries required to hire and maintain staffing "to carry-out collection, processing, analysis, and reporting of communications intelligence is becoming such a burden, that it has crowded out investments in new technologies, and has limited operational flexibility," according to the recent report "Preparing for the 21st Century: An Appraisal of U.S. Intelligence."

As in many tax-subsidized institutions, the burden of paying salaries, pensions and benefits — including to retired personnel — are draining essential funds needed to carry out the mission of the organization. In the NSA, for example, over 40% of the agency's total budget is used on personnel expenses — up from 30% in 1990 — even though the agency has 12% less employees on staff, the report stated. Statistics from local, state and federal law enforcement agencies seem to mirror the report's findings regarding the NSA. This places all of these agencies in a precarious position as encryption becomes more commonplace, because it means that they will have less personnel and less technology to carry out their enforcement and monitoring missions.

Thus, "Clipper " is seen by the bureaucrats as the "quick fix" to their problems.

CONGRESS CONSIDERING LEGISLATION

Congress is currently considering legislation which would head off the Administration's efforts to encourage domestic key-escrow encryption schemes and promote the widespread availability of strong, easy-to-use encryption technologies.

Several bills, including S.1726 (the Pro-CODE bill) sponsored by Senators Burns (R-MT), Leahy (D-VT), Dole (R-KS), Pressler (R-SD), Wyden (D-OR) and others, along with HR 3011, sponsored by Reps Goodlatte (R-VA), Eshoo (D-CA), Campbell (D-CA) and over 25 others are currently being considered by Congress. Both bills would relax export restrictions and prohibit the government from imposing key escrow domestically. ◆

ADDITIONAL RESOURCES

For more information on Clipper, and to keep abreast of Clipper III proposals, you may want to look at these excellent sources:

CPSR Clipper Archives
ftp://cpsr.org/cpsr/privacy/crypto/clipper/

WWW Virtual Library on Clipper
http://draco.centerline.com:8080/~franl/clipper/about-clipper.html

Computer Professionals for Social Responsibility
http://www.cpsr.org/dox/home.html

Electronic Frontier Foundation
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by Steve Graves

MAKING EVENTS HAPPEN

JavaScripts can run immediately after loading from a page or you can include an *event* in your html document to "trigger" your JavaScript. Anything that executes a JavaScript is an event. Most but not all events are initiated with mouse clicks. JavaScript uses different events to work with different objects. For example:

- **Focus**, **Blur** and **Change** events work with text fields, text areas, and selections.
- **Click** events work with buttons, radio buttons, checkboxes, submit buttons, reset buttons, and links.
- **Select** events work with text fields and text.
- **MouseOver** events work with links.
- **Submit** events work with forms.
- **Load** and **Unload** events work with the pages as they're retrieved from the server.

Events are just the trip wires that run parts of your JavaScripts; by themselves they do nothing. *Event handlers* are the JavaScript constructs that actually handle the requests generated by the event.

Let's suppose that a certain page on your site contains material suitable only for mature audiences, say a biography of Bill Clinton. You can write a small JavaScript that uses a pop-up message to alert the user to the nature of the content. Call your script "gatekeeper_code" for our example.

Both events and event handlers are specified as HTML attributes and take the form

onEvent="JavaScript code"

We'll use the onClick event to call "gatekeeper_code." In this case, our call is inserted as an html attribute.

Example: HTML code to call JavaScript gatekeeper_code

```
<A HREF="WWW.NOINHALE.COM" OnClick=
"gatekeeper_code">The Pro's Guide to Sexual
Harassment</a> by Jennifer Flowers
```

Steve Graves is the founder of ***Technical News Service Inc. (TN-S)) and editor of SysNews.Com***- The Journal of Online Products and Services. His online magazine for sysops and webmaster, includes news articles, editorials, reviews, software guides, and software libraries. As a full time software reviewer, Steve installs, runs, and maintains the BBS and Internet software he reviews. Steve lives and works in Cheverly, Md., about a half mile from Washington, D.C. with his son Brendan, age 10, and his wife, Mary. He authored the ***20 minute Chess Master***, one of the first interactive computer books. Steve holds commercial instrument, and instructor pilot certificates and enjoys reading, computers (some days), magic and music. Steve can be reached at **mailto:editor@sysnews.com**, **http://www.sysnews.com** or **(301) 773-8899** *voice* (10a.m. to 6p.m.EST M-F)

Book of the Month

If designing frames escapes you, take a look at ***JavaScript & Netscape Wizardry*** by Dan Shafer; ISBN: 1-883577-86-1. Dan isn't sure but he tells me he thinks this is book number fifty he has authored. Almost half the content is dedicated to designing and using frames and plug-ins. Dan said that, "Although effective web sites can be designed without frames; frames can't be effectively used without JavaScript. Of course JavaScript can enhance a site without the use of frames but they usually go hand-in-hand."

The **$34.99** price tag includes the 500 page reference plus a CD-ROM with plug-ins, applets, tools, and JavaScript examples. Unfortunately not all the examples actually work. This title is geared for the intermediate to advanced user, although novice JavaScript writers might find the frame and plug-in information useful, JavaScript & Netscape Wizardry was written for the intermediate to advanced user with previous script writing or programming experience. Order from Coriolis Group Books, 7339 E. Acoma Drive, Suite 7, Scottsdale, AZ 85260 USA **(602) 483-0192** You can also preview a chapter of this title online at the SysNews.Com website **http://www.sysnews.com/books.html**.◆

OnClick is the Event and **gatekeeper_code** is the event handler. OnClick triggers the event while the event handler gatekeeper_code instructs the browser how to handle the event.

There are two types of Event Handlers: the *function call* event handler and the *explicit code* event handler. The gatekeeper_code example is explicit code — the event handler was embedded in the HTML document as an attribute.

You will almost always find it more convenient to use function calls if your script contains more than a statement or two. Function call event handlers call functions previously defined in the head section of your HTML documents. The function call is usually the preferred event handler since it is modular and can be used to call your code as often as needed.

The six examples shown in the sidebar take advantage of Netscape's built-in alert function with just a couple of JavaScript events. You can easily modify these examples to use with your system. These very basic applications show what can be done with a few lines of code.

onClick Examples

Example 1: Message Buttons

It is easy to generate buttons with JavaScript — assuming you know how to construct forms in HTML. If not, get a copy of ***HTML - The Definitive Guide*** by Chuck Musciano & Bill Kennedy, published by O'Reilly & Associates (**http://www.ora.com**).

```
<!—Example 1 Starts Here————————>
<CENTER>
<FORM><INPUT TYPE="BUTTON" VALUE="Avoid Contractions"
    onClick="alert('Netscape doesn\'t like apostrophes without partners
    since it interprets \' as single quote marks. Quote marks must always
    be paired in JavaScripts. Use back slashes with apostrophes in your
    messages.')">
</FORM>
</CENTER>
<!—Example 1 ends Here————————>
```

Example 2: Button Trivia

Trivia games, jokes of the day, and simple Q&A applications are a natural for JavaScript.

```
<!—Example 2 Starts Here————————>
<CENTER><B>True or False: Jazz and Country have much in com-
mon.</B></CENTER>
<P>
<CENTER>
<FORM><INPUT TYPE="button"  VALUE="True"
    onClick="alert    ('True, jazz and country are both uniquely American
    music forms, share roots with the blues, and rely on improvisational
    skills.')">
<INPUT TYPE="button" VALUE="False"
    onClick="alert   ('Sorry, wrong answer. Select button one for
    explanation.')">
</FORM>
<FORM><INPUT TYPE="button" VALUE="Suggested Listening"
    onClick="alert  ('Jazz and country, both American art forms,
    share their roots in southern blues. Listen to Bessie Smith and Hank
    Williams — and have more in common than you might think.
    Compare the scooping lyrics and swing of Bessie Smith to the
    sonorous propulsion and easy beat of the music of Hank
    Williams')">
</FORM>
</CENTER>
<!—Example 2 Ends Here————————>
```

Example 3: Radio Buttons

Use Radio buttons when page space is at a premium. Although the button is small, content is not limited.

```
<!—Example 3 Starts Here————————>
<CENTER>
<FORM METHOD="post" NAME="message">
<b>About Charlie Parker</b> <input type="radio" name="message"
onClick="alert('Charlie Parker, born 1920, died 1925, is the most emulated
alto performer of all time. He died from drinking and drugging. ')">
</FORM>
</CENTER>
<!—Example 3 ends Here————————>
```

Example 4: Multiple Messages

You can use one button to provide multiple messages. String your messages together and separate with semicolons.

```
<!—Example 4 begins here————————>
<CENTER>
<FORM><INPUT TYPE="button"  VALUE="Miles Davis"
    onClick="alert('Miles played Bebop with Dizzie Gillespie and
    Charlie Parker from 1947-48.');alert('Miles led the way to the Cool
    sound of the late forties.');alert('He popularized modal improvisation
    with the release of \'Kind of Blue\' in 1959');alert ('Miles was also
    a leader and major contributor in the fusion movement of the
    seventies.')">
</CENTER>
</FORM>
<!—Example 4 ends here————————>
```

The previous example made use of explicit code event handling. This example accomplishes the same more cleanly using function call event handling.

```
<!—Example 4a: Using Functions ————————>
<SCRIPT LANGUAGE="JavaScript">
<!— begin hide
function alertMe() {
    alert("Miles played Bebop with Dizzie Gillespie " +
            "and Charlie Parker from 1947-48.:);
    alert('Miles led the way to the Cool sound of the late forties.');
    alert("He popularized modal improvisation with the release of " +
            "'Kind of Blue' in 1959");
    alert("Miles was also a leader and major contributor in " +
            "the fusion movement of the seventies.");

}
// end hide —>
</SCRIPT>
<CENTER>
<FORM>
<INPUT TYPE="button"  VALUE="Miles Davis" onClick="alertMe();">
</FORM>
</CENTER>
<!—Example 4a: Using Functions ends here————————>
```

Example 5: Text Area

Your users can create their own alert messages by typing their message into the text area.

```
<!—Example 5 begins here————————>
<center>
<FORM>
<TEXTAREA NAME="text" ROWS="3" COLS="30"></textarea><p>
<INPUT TYPE="button" VALUE="Alert Test!"
onClick="alert(this.form.text.value)"> <INPUT TYPE="reset" NAME="can-
cel" VALUE="Reset">
</FORM>
</center><p>
<!—Example 5 ends here————————>
```

Example 6: onMouseOver

Users do not have to actually click a link to trigger an event. They can simply move their cursor over an image or phrase to pop up a message. Use mouseOvers sparingly. The example will show why.

```
<!—Example 6 begins here————————>
```

Place your cursor over the image or the phrase and watch the message that pops up. Watch it continue to pop up as you try to quit. This quickly becomes annoying, don't you agree?

```
<center><table width="40%"><tr><td><A HREF=""
    ONMOUSEOVER = "alert('Don\'t forget to set your image size attrib-
    utes. If you do not, your JavaScripts may not work.')"><
<img src="any.gif" border="0" width="14" height="14"></a></td><td
align=right><A HREF=""
    ONMOUSEOVER = "alert('Don\'t you just hate these onMouseover
    events ')">Put your cursor here</a></td></tr></table></center><p>
<!—Example 6 ends here————————> ◆
```

JavaScript of the Month

Each month I will pick and analyze a JavaScript that meets three criteria. 1. It must demonstrate JavaScript's power and flexibility. 2. It must be freely available to Webmasters. 3. The application must be unique, practicable, cool, or otherwise of value to the online community. If you have written such a script or know of one, please e-mail Steve Graves at **mailto:editor@sysnews.com**.

ABOUT THE SCRIPT AUTHOR

Scott J. Walter is a freelance contractor (programming, multimedia, and Web design) working in the Minneapolis, Minnesota area and has recently joined Technical News Service, Inc. as a contributing editor and staff consultant. Scott works with Java, JavaScript, VBScript, ActiveX, UNIX, Windows, C++, Delphi, Macromedia Director and other budding development technologies. Scott can be reached via **mailto:sjwalter@winternet.com** or through **http://www.winternet.com/~sjwalter/**

PLUG AND PLAY PUBLISHING WITH *INSTANT EZINE*

JavaScript code by Scott J. Walter

Our JavaScript of the Month is actually a series of JavaScripts and HTML templates that you can use to publish electronic magazines on the Web. The script produces a framed screen with a table of contents, a display area for articles, and a "help" screen to display article, pull quotes, or other information. Insert your story text into the appropriate html story file, markup with html code to taste, edit the toc.html table of contents file, and upload to your server..

```
<!————————Beginning of document one: Index.htm:  The "driver" of our eZine.
This file contains most of the JavaScript code required to make Instant Ezine go.————————>

<HTML>
<HEAD>
<TITLE>JavaScript:  The eZine!</TITLE>
</HEAD><FRAMESET COLS="90,*">
  <FRAME SRC="toc.htm" NORESIZE NAME="Buttons"
     MARGINWIDTH=1 MARGINHEIGHT=4 SCROLLING=NO>
  <FRAMESET ROWS="*,60">
     <FRAME SRC="cover.htm" NORESIZE NAME="Main" SCROLLING=AUTO>
     <FRAME SRC="help.htm" NORESIZE NAME="Help" SCROLLING=NO>
  </FRAMESET>
</FRAMESET>
<NOFRAMES>
<BODY BGCOLOR=#FFFFFF>
<CENTER><H1>JavaScript:  The eZine!</H1></CENTER>
<HR>
Since this is an eZine about JavaScript, you really ought to get a browser that
supports it.  Why not check out
<A HREF="http://home.netscape.com/">Netscape Navigator 2.0</A>?
<HR>
Send your comments to the <A HREF="mailto: ">Editor</A>.//You will want to insert your own mail
address here.
</BODY>
</NOFRAMES>
</HTML>
<!————————End of document one: Index.htm————————>
```

Help.htm displays text information retrieved from the table of contents. Scott uses the mouseOver event to trigger the event handler.

```
<!————————Beginning of document two: help.htm: The eZine help Window————————>

<HTML>
<HEAD>
<TITLE>JavaScript:  The eZine!</TITLE>
</HEAD><BODY BGCOLOR=#FFFFFF>
<CENTER>
  <FORM>
     <INPUT TYPE="text" NAME="helpmsg" SIZE=60>
  </FORM>
</CENTER>
</BODY>
</HTML>
<!————————End of document two: help.htm: The eZine help Window————————>
```

(continued...)

The **toc.htm** file contains the table of contents, frames, and links for your stories. Note the **Make Array** function. As array is just an object with a list of properties.

```
<!————————Beginning of document three: toc.htm: Table of Contents————————>
<HTML>
<HEAD>
<TITLE>JavaScript: The eZine!</TITLE>
<SCRIPT LANGUAGE="LiveScript">
<!— Hide from non-JavaScript browsers
function MakeArray(size) {
  this.length = size;
  for(i = 0; i <= size; i++) {
    this[i] = '';
  }
return this;
}
msg = new MakeArray(7);
msg['story1'] = 'What is this?';
msg['story2'] = 'Who wrote this?';
msg['story3'] = 'Article #3';
msg['story4'] = 'Article #4';
msg['story5'] = 'Article #5';
msg['index']  = 'Return to the cover page';
msg['expand'] = 'Remove the button bar and help window';
clearid = 0;
function message(button,url) {
  if(clearid) {
    clearTimeout(clearid);
  }
if(window.parent.Help != 0 &&
    window.parent.Help.document != 0 &&
    window.parent.Help.document.forms[0] != 0 &&
    window.parent.Help.document.forms[0].helpmsg != 0) {
    window.parent.Help.document.forms[0].helpmsg.value = msg[button];
    self.status = url;
    clearid =
setTimeout("window.parent.Help.document.forms[0].helpmsg.value = '*', 5000);
  }
}
function KillTimer() {
  if(clearid) {
    clearTimeout(clearid);
  }
}//—>
</SCRIPT>
</HEAD><BODY BGCOLOR=#FFFFFF ONUNLOAD="KillTimer();">
<CENTER>
<FONT SIZE=1>
<STRONG>CONTENTS</STRONG>
<FONT SIZE=>
<HR SIZE=4 ALIGN=CENTER>
<A HREF="story1.htm"
  TARGET="Main"
  ONMOUSEOVER="message('story1', this.href); return true;">

Story 1</A>
<HR SIZE=2 WIDTH=25% ALIGN=CENTER>
<A HREF="story2.htm"
  TARGET="Main"
  ONMOUSEOVER="message('story2', this.href); return true;">

Story 2</A>
<HR SIZE=2 WIDTH=25% ALIGN=CENTER>
<A HREF="story3.htm"
  TARGET="Main"
  ONMOUSEOVER="message('story3', this.href); return true;">

Story 3</A>
<HR SIZE=2 WIDTH=25% ALIGN=CENTER>
<A HREF="story4.htm"
  TARGET="Main"
  ONMOUSEOVER="message('story4', this.href); return true;">

Story 4</A>
<HR SIZE=2 WIDTH=25% ALIGN=CENTER>
<A HREF="story5.htm"
  TARGET="Main"
  ONMOUSEOVER="message('story5', this.href); return true;">

Story 5</A>
<HR SIZE=2 WIDTH=25% ALIGN=CENTER>
<FORM><TABLE CELLPADDING=0>
  <TR><TD>
    <INPUT TYPE=BUTTON NAME="Index" VALUE="  Index "
      ONCLICK="parent.location='index.htm';">
  </TD></TR>
  <TR><TD>
    <INPUT TYPE=BUTTON NAME="Expand" VALUE="Expand"
      ONCLICK="alert('You can restore the button bar by\npressing the
      BACK button.')
        parent.location = parent.Main.location;">
  </TD></TR>
  <TR><TD ALIGN=CENTER>
    <HR SIZE=4 ALIGN=CENTER>
  </TD></TR>
  <TR><TD ALIGN=CENTER VALIGN=TOP>
    <SCRIPT LANGUAGE="JavaScript">
    <!— Hide from non-Javascript browsers
    function DisplayDate(dateString){
      d = new Date(dateString);
      return "" + (d.getMonth() + 1) + "/" + d.getDate() + "/" + d.getYear();
}
  document.write("<FONT SIZE=2>");
  document.write("<B>" + DisplayDate(document.lastModified) + "</B>");
  document.write("<P><FONT SIZE=>");
  //—>
  </SCRIPT>
  </TD></TR>
</TABLE></FORM>
</CENTER>
</BODY>
</HTML>
<!————————End of  document three: toc.htm: Table of Contents————————>
```

Story1.htm, Story2.htm, Story3.htm, etc., are the templates for your articles.

```
<!————————Beginning of Document four: story1————————>

<HTML>
<TITLE>Your Magazine</TITLE>
<BODY BGCOLOR=#FFFFFF>
<H1>Story 1 Title</H1>
<HR>
<pre>
Paste, type, or insert story text here in plain text. If you wish to markup
your story in html, remove the <pre></pre> tags> tags.
</pre>
</BODY>
</HTML>

<!————————End of document four: story1————————>
```

Since capturing all the files required for this month's JavaScript application could be quite inconvenient, we zipped them up for you. Navigate to the JavaScript Resource Center at **http://www.sysnews.com** and download **pick3.zip**.

JavaScript of the Month



JAVA *BLOOPER* OF LAST MONTH

A slip betwixt publisher and printer caused the source code listing of the "Bozo Filter" JavaScript to be omitted from our July issue. Here it is, with apologies to all concerned:

A BOZO FILTER for a Web Page

JavaScript may be most useful to individuals who use a hosting service to present their web pages. The problem with many hosting services is that they do not allow customers to upload and use CGI scripts because of potential security problems. JavaScript puts power into the hands of Web authors, since JavaScripts are inherent to the HTML pages and are executed on the client platform and not on the server.

Access control is normally handled through the web server security functions. Fraser's "BOZO" JavaScript allows the HTML author to deny access requests from specified URL addresses. In other words, you can prevent another Web site from establishing a link to yours.

According to Fraser, "Like the politician who occasionally experiences an unwelcome endorsement, there will be pages which receive visitors through unwelcome links. I will leave it to your imagination as to what sort of pages you might not appreciate posting links to your page.

"I created the BOZO FILTER for the victims of such predatory pages. It enables you to specify a list of URLs from which you do not wish to receive visits."

Be warned that this script is by no means bulletproof. For starters, since JavaScript is supported only by Netscape browsers, this script can be easily circumvented by using any browser other than Netscape. Look at it as an old-fashioned hook latch used to secure screen doors. It will not keep out a determined intruder but will deter the casual unwelcome guest.

Implementation

Copy the script below and paste it onto your HTML document between the </title> and </head> tags.

To customize the script for your web page, edit the following lines:

var numb =4

This line specifies the total number of URL bozos you wish to block.

bozo[1] = "http:// ....".
bozo[2] = "http:// ....".

These lines specify the absolute URLs that you intend to block. Add as many as you wish (incrementing the number), but make sure the total is equal to the **numb** variable specified in the previous line.

Member's Only Filter

Frasers's JavaScript can be easily modified to provide reverse screening so that *only* visitors from specific URLs can view your pages. In the IF statements above, change the comparison operator from "equal to" (==) to "not equal to" (!=).

This inverts the entire script so that ONLY visitors from designated URLs can view your pages. This might actually work better than the original JavaScript because users can not just switch browsers to circumvent the script. This application can be useful if the author wishes to restrict access to specified individuals.

Alistair B. Fraser, Ph.D., a Professor of Meteorology at Pennsylvania State University, wrote the following JavaScript and comments. He started his professional career with the Canadian Government as a weather forecaster in Vancouver before returning to school to obtain a Ph.D. in Meteorology from the Imperial College of the University of London.



Prof. Alistair B. Fraser, BOZO Filter author -
http://www.ems.psu.edu/~fraser/fraser.html

```
<!————————— Beginning of Script —————————>

<script language="JavaScript">
<!— hide script from old browsers

// this BOZO filter was created by Alistair B. Fraser: abf1@psu.edu
// Copyright is retained by Alistair B. Fraser, but you are free to use it to repel predators

var caller = document.referrer                    // this discovers the calling page

var msg1 = "The BOZO FILTER intercepted a request from\n\n"   // these form the
var msg2 = "\n\nand DENIED ACCESS."                           // message in the
                                                              // alert window

if (caller=="") {
msg1 = "The BOZO FILTER intercepted a request which did not come from a page, "
msg2 = "and DENIED ACCESS. \n\n You must branch to here from a recognizable page."
}

var numb =5       //EDIT THIS LINE: set value to the number of bozos listed below

function Bozo(numb) {
  for (var i =1;  i <= numb; i++) {
  this[i] = i
  }
}

bozo = new Bozo(numb)

// List the URLs of as many bozos as you wish following
//    the format of those shown immediately below.

// One visitor attempted to circumvent this filter by copying the URL for a page into the
//Open Location dialogue box and calling it from there. This was blocked by the simple
//expedient of //disallowing access unless the request came from an identifiable page.

// The (1st) empty URL blocks attempts to circumvent the filter by
//    accessing the page through the Open Location dialogue box.

//Edit the following lines: Set Urls to match those that you wish to block from accessing your system.

bozo[1] ="";
bozo[2] = "http://mirsky.turnpike.net/wow/1996/Jan/Jan1296.html";
bozo[3] = "http://metro.turnpike.net/mirsky/1996/Jan/Jan1296.html";
bozo[4] = "http://mirsky.com/wow/1996/Jan/Jan1296.html";
bozo[5] = "http://www.primus.com/staff/paulp/useless/music.html";



for (var i in bozo) {

  if (bozo[i] == caller){
      alert("\n"+msg1 + bozo[i] + msg2); //delete line to remove alert dialogue
      history.back();
      break;}
}

// end hiding from old browsers —>
</script>

<!————————— End of Script —————————>
```




Come see us at ONE ISPCON - Booth #523





Notes From The Underground

by Wallace Wang

CRACKING ENCRYPTION

Everyone has heard that you should use encryption programs, such as Pretty Good Privacy (PGP), to protect your privacy on the Internet. But as the PGP program name suggests, encryption can offer pretty good protection but not necessarily absolute privacy. Even if you use encryption regularly, are your files really safe from prying eyes?

While your privacy depends on the type of encryption program you use, the answer generally is no. Just as some locks are stronger than others at keeping out burglars, some encryption programs are pretty good while others are absolutely horrendous. If you happen to use a weak encryption program, it simply gives you a false sense of security.

Some of the worst encryption programs are (ironically) the most convenient to use. These weak encryption programs come with most of the commonly used programs such as Microsoft Word, WordPerfect, Lotus 1-2-3, or PKZIP. While encrypting your WordPerfect document may keep your spouse, boss, or co-worker from reading your sensitive documents (love letters, resumes, ransom notes, etc.), they won't stop anyone with several hundred dollars and access to any of the commercial encryption cracking programs sold by ***Crak Software*** (**http://www.indirect.com/www/johnk**) or ***Access Data*** (**http://www.accessdata.com**).



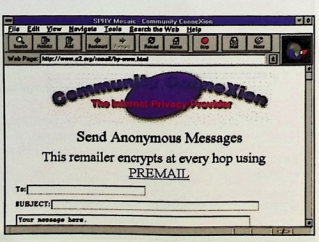
Both Crak Software and Access Data sell a variety of programs whose sole purpose in life is to examine a password-protected file and retrieve its password so you can crack it open at your leisure. Here's a quick summary of what you can buy.

For **$185** grab a program dubbed ***EXcrak2***, which can retrieve passwords from both Windows and Macintosh versions of Excel password-protected files. Another **$99** can get you ***QWcrak***, a program to retrieve Quicken password-protected files (great for embezzlers). Toss in another **$285** and you can grab ***NTPASS for Netware***, which allows file server access without the supervisor or administrator's password, password modification, and even the ability to overwrite a supervisor's password. Both companies have tollfree numbers (Crak Software: **(800)505-CRAK**; Access Data: **(800)489-5199**) so get those credit cards ready and order now.

Ostensibly these types of programs serve a valuable role in case you encrypt a valuable document and then later forget your password. Of course, anyone could use these same cracking programs to crack open other people's files as well. But now that you know that these programs exist, you'll know never to trust the encryption features offered by any of the popular word processors or spreadsheets.

But do these cracking programs really work? In case you don't want to spend money buying a commercial cracking program to find out, encrypt a WordPerfect document and try to crack it using a freeware cracking program from ***Bokler's Guide to "CRACKER" Software*** (**http://www.bokler.com/bokler/bsw_crak.html**) or the ***Archives*** (**http://www.primenet.com/~cracked/archives.html**).

These two sites contain the usual assortment of programs such as ***WPCrack***, which cracks WordPerfect 5.1 files (and includes C source code); ***Fast ZIP Cracker***, which cracks PKZIP 2.04G protected files; an AMI BIOS password finder (in case someone actually used the password feature of their BIOS to keep you out of their computer); and ***WinCrack***, which cracks files encrypted using the WinCrypt encryption program.



Wallace Wang is the author of ***CompuServe For Dummies***, ***Procomm Plus for Dummies*** and ***Visual Basic for Dummies*** (all published by IDG Books) as well as ***Surfing The Microsoft Network***, published by Prentice-Hall). He also does stand-up comedy in the San Diego area, and has appeared on A&E's "Evening at the Improv" TV comedy club. He can be reached via e-mail at: **70334.3672@compuserve.com** or **bothekat@aol.com** or **bo_the_cat@msn.com**

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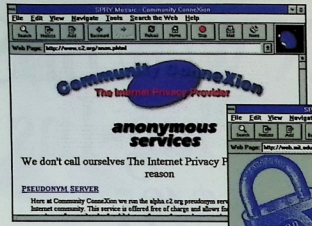


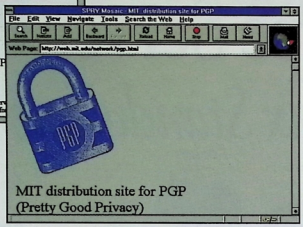
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Many of these free programs provide actual C, C++, or assembly language source code so you can see how they work. Surprisingly, the source code for these cracking programs are short and relatively simple, which only reveals the incredible weakness of the encryption algorithms used by Microsoft Word or Lotus 1-2-3. Study the source code and you can teach yourself how to crack open password protected files yourself, or write your own program to crack open password protected files.

DOES ANY ENCRYPTION WORK?

By now, you should be convinced that the encryption programs in your word processor, spreadsheet, or compression program are practically worthless. But what about separate encryption programs such as PGP? Can you trust these encryption programs to protect your data?

To help insure the validity of their algorithms, many encryption programs (like PGP) offer their source code for examination. That way a variety of experts from around the world can study the code for weaknesses and verify or nullify the effectiveness of the encryption program. The more people who can study an encryption program, the more likely they'll be able to spot any flaws that may exist in it.

But despite this, using any form of encryption may still not protect you. The people most skilled at the art of encryption (those employed by the government) aren't likely to reveal any weaknesses they spot in an encryption program's source code. That leaves the examination of an encryption program to people who may not have as much actual experience in cracking encrypted data as their government-employed counterparts.

If you would never trust your life with a surgeon who has never operated with a knife before, then you probably don't want to trust your valuable data with a program written by someone who has never tried cracking encryption programs either. Until you've spent some time cracking encrypted data on your own, you probably don't have enough experience to write a truly effective encryption program. For more information about the perils of trusting encryption, visit the ***Beware of Snake Oil*** web site at **http://www.math.ucla.edu/pgp/volume1/BewareofSnakeOil.html**.

Reading the information on this web site can convince you that encryption provides protection against everyone except the large encryption-cracking agencies like the U. S. National Security Agency (NSA). To the NSA, encryption may be nothing more than a minor nuisance that takes little time to crack open. So if you're trying to sneak secrets past a well-funded government agency, your messages will probably be safer going by carrier pigeon than the Internet.

Of course, the entire issue of encryption has its supporters and detractors. While the U. S. government tries to ram the Clipper chip into standard usage and everyone screams at the perils of trusting their government with encryption keys, we must face the fact that encryption can be used for illegal means.

At the ***The Future of Cryptography*** web site (**http://www.cosc.georgetown.edu/~denning/crypto/Future.html**) and the ***World of Strong Privacy: Promises and Perils of Encryption*** web site (**http://www.scu.edu/SCU/Programs/HighTechLaw/courses/ccp/strongpr.html**), you can read about the problems encryption can cause, ranging from protecting terrorists to allowing child pornography dealers to distribute their wares around the world unscathed. While the Clipper chip seems like the wrong solution to a valid problem, what other solutions are available that are just as effective without sacrificing our right to privacy?

To keep up with the latest debates surrounding encryption, visit the ***Electronic Privacy Information Center (EPIC)*** web site at **http://www.epic.org**. EPIC is a public interest research center in Washington, D.C., established in 1994 to focus public attention on emerging civil liberties issues and to protect privacy, the First Amendment, and constitutional values.

Here you can find links to encryption programs like PGP, news about the never-ending government attempt to push the Clipper chip, the Children's Privacy Bill to protect kids from the abuses of the marketing industry, and even scanned images of formerly classified government documents about cryptography.

So should you bother using encryption? Consider this; no lock on a door can guarantee to keep out a determined intruder, yet most of us still lock our doors anyway. Skilled burglars can even pick any lock open, but that doesn't stop us from trusting locks to protect our possessions.

In the same way, encryption may not be perfect, but it can often be just enough to protect us against the majority of threats we may face. Encryption can never guarantee absolute privacy, but restricting the use, development, and distribution of encryption will likely do more harm than good. Just keep in mind that no matter how cleverly you may encrypt something, you will always risk that someone will find a way to crack it wide open.



But that risk is definitely more acceptable than not having the choice of encrypting anything at all.◆

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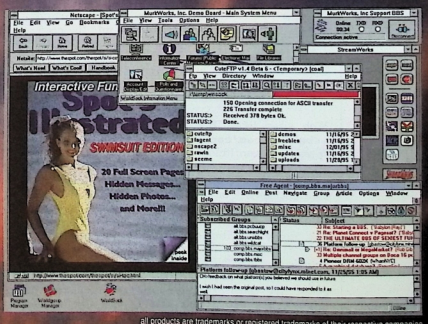
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THE SOUND OF THE INTERNET

Voice/Video On The Net

by Jeff Pulver

Jeff lives in Great Neck, New York (although one could argue he really lives on the net and sleeps in his home in Great Neck). These days Jeff is a self-proclaimed "Net Technologist" and publisher of *NetWatch* (**http://www.pulver.com/netwatch**), a web magazine which tracks enabling net technologies with a specific focus on audio, video, marketing and services on the net. He is also the project manager of the Free World Dialup experiment (**http://www.pulver.com/fwd**), and the moderator of several mailing lists including: *VON*, *NetWatch* and *IPhone*.

You can e-mail Jeff at mailto:**jeff@pulver.com**

During the first half of 1996 I have observed the gradual critical mass acceptance of Audio on Demand ("AOD") as well as Video on Demand ("VOD") technologies. The ACTA petition took specific aim at Internet Telephony, but if ACTA is successful, the growth of Multimedia on the Internet would be at risk as well.

The next big wave of streaming audio and video products will be seen later this year when some of the next generation multi-player Internet action games are introduced. The early prototypes which I have seen have been really impressive.

There are several freeware AOD products currently available, but for mission critical applications it seems that some companies would rather pay for the product and have somebody else be accountable for support.

Server-based AOD products include RealAudio and Streamworks. Some popular freeware AOD products include Truespeech, ToolVox, Internet Wave and Acoustic Player.

In most freeware cases, an AOD product is free because the company wants to showcase their proprietary ***Codec*** (Compression/Decompression algorithm) in the hope of attracting profitable licensees. The Voxware Codec, for example, has been licensed for use in CoolTalk, PowWow and Enhanced CU-SeeMe. TrueSpeech has been licensed by WebPhone and Internet Phone.

In order to create content for an AOD product, you need to convert your .wav or .au files into the proprietary codec format supported by a particular AOD vendor. The program used to do your conversation is called an ***Encoder***. There currently isn't any encoder which will encode the same source file into all of the popular codec formats available.

Web sites like CBS' Campaign 96 (**http://www.cbsnews.com/campaign96**) use AOD to deliver "eyes-free" continuous audible news to desktops. VDONet (**http://www.vdonet.com**) recently announced that both the Republican and Democratic Conventions will be covered live on the Net. Although I don't have a radio or television at my desk, I could keep track of the events of the convention, during the day simply by dialing out to the Net.

During the 1996 NBA finals, I was traveling around the world...but since ESPN's website carried the event live (**http://espnet.sportszone.com/editors/liveaudio/index.html**) I was able to plug into the Net and listen in. The Internet replaced my pocket AM radio.

AudioNet

A world of live audio waits at Audio Net

Marc Cuban's Audio Net (**http://www.audionet.com**) has been instrumental in bringing unique audio content to the Net. These days many of the Internet conferences in the United States have some segments which broadcast live on the Net.

Have you ever secretly wanted to run your own radio station? One of the coolest parts of being on the Internet is that it is possible to set up a radio station and report news, host a talk show or just play music – with a world-wide listening audience.

If you play music on the Internet, don't be amazed if you receive a letter from the lawyers representing ASCAP and BMI. Both of these organizations are now on the Net and expect to receive royalties if any of their artists' tunes are played on the Net.

Video on Demand delivered over the Internet has the potential to become the late 1990's replacement for Computer Based Training (CBT) at college campuses and corporate learning centers. Enhanced CU-SeeMe (**http://www.wpine.com**) has become very popular amongst those involved in Distance Education Learning programs.

The adult entertainment industry continues to use these technologies as well...and in fact some of the first customers of Streamworks (**http://www.streamworks.com**) were and continue to be from the Adult Entertainment Industry.

NYNEX's recent three million dollar investment in VDO Corp. (**http://www.vdo.net**) is a great example of a telecommunication company which chose to embrace rather than to reject these emerging technologies. In the near future I'm sure other RBOCs will be offering similar products.

Earlier this year White Pine Software announced a partnership with the State of New Hampshire which will connect every school in the state to the Internet with the ability to participate in multipoint video conferences.

DialWeb allows people with no knowledge of HTML to pick up a telephone and update the audio content on their website within seconds. Try it yourself at **http://www.tc.net/telet/demos/amaildialweb.html**

VON PRODUCT ANNOUNCEMENTS

Third Planet Publishing has released its ***Digiphone Deluxe*** product. In a startling reversal of previous policy, the company now makes a demo version available for download at **http://www.planeteers.com**. The company recommends Creative Labs' full-duplex driver, which can be downloaded at **http://www.creaf.com**. To date, Digiphone remains one of the only commercial Internet Telephony products which uses TCP rather than UDP.

Other VON products which have hit the virtual stores include:

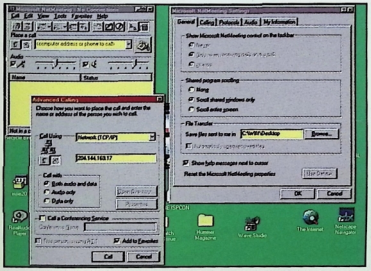
Bulgaria's IRIS Phone is now available from **http://alpha.acad.bg/iris**

IBM's Internet Connection Phone is now available from **http://www.ibm.com/internet/icphone/index.html**

Creative Labs recently released their Phone Blaster 28.8 PNP — which was the first product to ship with both Microsoft Phone and Explorer.

PictureTel announced their first personal bridges which enable users to set up their own multipoint video conferences on demand. More info is available from **www.picturetel.com**

VON PRODUCT OF THE MONTH



NetMeeting by Microsoft

While the merits of Explorer will be discussed in other columns in ***Boardwatch*** — the component of Explorer which I found to be particular exciting is NetMeeting. It includes the following features:

- Application Sharing
- Whiteboard
- Text Chat
- File Transfer

And you can bet that voice mail will be added in the not too distant future.

While NetMeeting may not be a LiveMedia-compliant product, it does adhere to major international standards from both the International Telecommunications Union (ITU) and the Internet Engineering Taskforce (IETF).

Right from the start NetMeeting has three things going for it. It works, it's cool and it's from Microsoft.

NetMeeting is the first VON product to introduce Application Sharing as a standard feature. Application sharing allows one person to have an application open on his machine while exporting its display to up to 255 other people in a group. For example, one person can open up a spreadsheet and people all over the world could pass around the virtual mouse and enter information into the spreadsheet.

Microsoft plans to support WinNT and MacOs in addition to the Windows95 platform. When Powerpoint95 was introduced earlier in 1996, it was one of the first Microsoft products which had application sharing. I believe that as additional "Internet Aware" products become available from Microsoft, you can expect to see Application Sharing in most of them.

NetMeeting is also server based — meaning that you need to connect to Microsoft's User Location Service (**http://uls.microsoft.com**) in order to see who else is available to speak with. Last time I checked there were over one thousand people online.

The file transfer feature in NetMeeting allows you to send a file to many people at once. In other words, you can send a file to all of the people participating in a conference. The file is sent in the background and does not disrupt the operation of any of the other NetMeeting features.

As the bigger players make their move into the marketplace the people who will benefit the most are the users. The competition is going to be great — and while some smaller companies can and will survive, there will be a shake out. On the Internet there seems to be no brand loyalty...whatever is the latest and coolest search engine or the latest and greatest VON product, there will be many people who try it out and if it is better than what they are used to they will begin to use it.

JOINING THE VON MAILING LIST

Last month I received e-mail from several people who wanted to know how to join the VON mailing list. The following is the steps which are required:

1. send **mailto:majordomo@pulver.com**
2. leave the subject blank
3. in the body of the message write: **subscribe von-digest**

You can also search the VON mailing list archives at **http://www.pulver.com/von**

If you have any VON related questions, please feel free to send **mailto:jeff@pulver.com**, and set the subject to **Boardwatch Reader VON Questions/Comments.**

On September 10-11, 1996, I will be hosting a two day business conference called "The Talking Net." It will be held in New York City. For more information, **mailto:conference-info@pulver.com**, or visit **http://www.pulver.com/conference**

In July, my first book, ***Internet Telephony Toolkit*** (published by John Wiley & Sons) will start appearing in your local bookstores. The book provides an overview of the Internet Telephony marketplace and the CD accompanying the book contains many of the popular VON products which you have seen references to in my columns here. ◆



CABLE ACCESS by Neal Schnog

ARE CABLE COMPANIES IN A FIGHT FOR SURVIVAL?

Twenty-four months ago most cable television operators had not even heard of the World Wide Web. Today, many industry executives only contact with the Internet is through the news, not use. But now, according to industry consulting firm CSA, cable television companies serving over 60% of the US market have announced plans to become Internet access providers via cable modems. The sudden interest came only months before the entrance of AT&T and Pacific Bell into the Internet access business and will surely be followed by additional entrants, including local & regional phone companies, long distance carriers, wireless cable television operators and DBS (direct broadcast systems via satellite). With all these well established competitors and the promise of more, why is the cable television industry so interested in providing Internet access? The simple answer seems to be money from a new and potentially lucrative revenue source. However, the true reason may go much deeper. Becoming Internet access providers may be the key to cable television's long term survival.

The 1996 world of cable television is a far cry from the industry's heydays of the 1980s. Re-regulation of the business in the early 90s and the current onslaught of competition have had a crippling effect on the growth of a once healthy industry. In addition, cable television companies suffer from a poor image nationwide which stems from service problems encountered in the high growth years and rate increases which far outpaced inflation. Cash flow, the industry's de facto measure of health, has been flat and gross margins before interest, depreciation and amortization have been falling. The financial effect has caused Tele-Communications, Inc. (TCI), the largest US cable operator with 12.7 million customers, to lose the coveted investment grade rating for its bonds, which could mean higher financing costs. The net result is that TCI and other cable operators have seen their stock prices and private valuations languish (see chart) and are looking for ways to reverse the current financial trends. The cable television industry must find ways to compete and add new revenue sources. The solution ... jump on the Internet band wagon. It's hot, it's high tech and it's feasible.

Neal Schnog, based in Berkeley, CA, is President of CYP, Inc., a cable television publishing and consulting firm who's primary titles are the Cable Yellow Pages and Cable Communiqué. Current projects include an online version of Cable Yellow Pages, and consulting with companies on issues ranging from marketing to technology. As a 15 year veteran of the cable television industry, he has owned and operated numerous cable systems throughout the west and continues to operate cable systems as President of Colonial Cablevision, Inc. Schnog has a variety of other investment interests extending from communications to snow board manufacturing. In his spare time he skis, mountain bikes, hikes and roots for the Syracuse University basketball team, his alma mater, where he received a BA in Economics in 1981. Schnog can be reached at mailto:schnog @cableyellow pages.com

CABLE MODEM DEPLOYMENT INFORMATION

10 Network Segments X 1,000 House Holds Per Segment = 10,000 potential customers

Assuming 50% have computers the potential customer count is 5,000

If 15% were to subscribe to Internet access service the cable system would have 750 customers

INFRASTRUCTURE EXPENSE (ASSUMES A CABLE SYSTEM IS 2-WAY CAPABLE)

Plant & Equipment - $89,995

Cost Per Cable Modem - $371

SERVICE REVENUE PER SUBSCRIBER

Service Initiation Fee - $50

Monthly Recurring Charges - $42 (assumed modem is leased to subscriber)

RETURN ON INVESTMENT

Modem Expense less Initiation Fee - $321

Infrastructure Expense amortized over 750 customers - $120

Total Fixed Costs - $441

Payback at $42 per month 10.5 months

ROI over 24 months - 229%

For a cable company to add Internet access via cable modem it must have three things — a physical system capable of two way transmissions; the ability to bill and provide technical support to customers; and cable modems, routers and switchers which can be configured to work on the system. Cable systems capable of two way transmissions have existed for many years but most firms never built in the technology until recently. Cable systems which are not already two-way soon will be; most of the cable industry is upgrading their plant and equipment to meet competition. Cable companies have billing and customer service operations already in place throughout the country. Adding another line to the bill and training their people to answer technical questions is a simple matter. Cable modems and the technologies to make them work have been in use in LAN and WAN applications for some time. So, although there will be a learning curve to overcome before cable operators are able to install cable modem tech-

COMPANY	STOCK PRICE 5/31/96	%CHANGE IN 1996
Tele-Communications, Inc.	$18.00	-9.4%
Comcast Corp	$17.50	-7.9%
Falcon Cable System Company	$9.50	-9.5%
TCA Cable	$29.00	4.5%



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Omni-Mall Add-on	$697.00	Watchdog Kit	$149.00
Fax/Online Add-on	$174.00	Command Center Unlimited	$149.00
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nology nationally, the only real question left is timing.

As in many new product launches, timing is often a function of money, so let's look at the costs and potential returns. According to Zenith, an Internet access service via cable television/cable modem will pay off the investment in less than a year. Zenith provided the model of income and expenses shown in the side bar on page 104.

Projections make the business look simple and actual results will obviously vary; but with the model return on investment approaching 229%, cable operators seem to have no problem with the risk reward ratio. More important is that projections like this make Wall Street analysts sit up and take note. Although there may be some discounting and profits from the new services may still be a few years away, cable operators are hoping that their stocks might soon get the same treatment as Yahoo, Netscape and other hot Internet stocks. Cable modems may be far more than just a new revenue source. In the early days of the Clinton/Gore administration, Internet users were claiming that the Information Super Highway was already here in the form of the World Wide Web. If this is so, then any company which is not a part of the Net would be left out of the next half century of communications. As a broadband Internet access provider, the cable television industry could be a great addition to the Internet or Information Super Highway.

Of course, this assumes that cable operators will get there before their competitors — local phone companies, wireless systems and any new technology which may appear. The fight here is not for a new revenue source but for the life of the industry. Once everything is digital and bandwidth is available through a variety of sources, television as we know it may become just another part of the Information Superhighway. The cable industry sees the writing on the wall and is trying to avoid becoming the Western Union of the 21st century.

Of course, all this brings us to the prognostication that a new home "appliance" is coming which will put television, telephone, computer and Internet access all in one box. We've all heard about it and the converging communications and information industries seem to be betting on the box's arrival. While the concept is fantastic, the creation of such a device and its acceptance will be predicated on consumer demand. So given the actions of the cable industry, consumers must be ready for this new service, right? Maybe, maybe not.

It is interesting to note, that in 1994, a major online service found in a study that consumers did *not* want television and computing on the same device. Specifically, the study reported that participants see quite a separation between the PC and the TV. While recognizing that technically the two devices are getting to be quite similar, people see TVs as very different from PCs. TVs are "social," "family affair," easy to operate, and entertainment oriented. PCs, in contrast, are "solitary," difficult to learn, and work oriented. When asked which device they liked better, the highly sophisticated group of computer-savvy people in the Silicon Valley almost all answered - the TV! ◆



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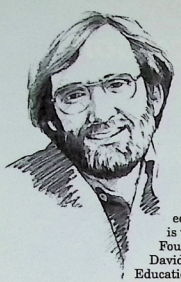


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EDUCATION LINK

by Rea Andrew Redd

NO CHANGE BRINGS CHANGE

There are disturbing indications that the compact between the public and public education is close to null and void; this thesis is the focus of a report issued by the Kettering Foundation and authored by its president, David Mathews. Once the Secretary of Health, Education and Welfare during the presidency of Gerald Ford, Mathews has used the results of ten years of research, sponsored by the foundation, as the source for this conclusion.

Rea Andrew Redd lives and works in southwestern Pennsylvania where he manages a high school library, teaches European history and Scholastic Achievement Test preparation. On occasion, he reenacts American Civil War battles with the Ninth Pennsylvania Reserves, an historic, military impression unit. E-mail Rea at: **redd@genesis.duq.edu**

Is There a Public for Public Schools? declares that the public school system is no longer viewed by the citizens as being owned by the public.

Mathews reports that people are no longer strongly committed to the idea of public schools for the benefit of the entire community. Families want their children to receive a good education, but "good" education does not always come from public schools.

The solution, Mathews states, is not more strategies of parent involvement in the system's agenda; communities have to decide what it is they want from the school. Can electronic education and the Internet give citizens a sense of ownership in their school system?

Jerry Winegarden, senior user-services specialist of the Office of Information Technology at Duke University, organized a donation of 60 PCs to Hillside High School, which had up-to-date server and network software, but few workstations. Not coincidentally, Winegarden's son attends the high school and Winegarden was in the happy position of being both donor and recipient.

Boise State University donated over 1,000 computers to Idaho's schools in 1995. The College of Education and Instructional Technology received funds from the state legislature to train the public school faculty in the classroom use of the computers. The teachers return with a machine and adequate instruction in its use.

Hawaii's Department of Education has started installing a state-of-the-art network for all the state's schools. Ascom Timplex, Inc., of Woodcliff Lake, N. J., is providing the equipment and expertise for the network that will enable 188,000 students at 240 sites to have Internet access through their school buildings. About half of the sites are connected at this time and the project should be finished by the end of the year.

Is There a Public for Public Schools? David Mathews, Kettering Foundation Press, P. O. Box 41626, Dayton, Ohio 45411, **(800)600-4060**

The Hawaiian Connectivity Project: **http://www.timeplex.com** or Patricia J. Rohme, at Ascom Timeplex, **(201)391-1111**

THE HUMAN SIDE OF THE NET

Killis Foster, a 16 year-old student at Central Park East Secondary School, is battling Crohn's disease. Early this summer, he was presented with a personal computer equipped to send and receive electronic mail over the Net through JUNO, a free e-mail service. Killis will continue to present his school work to his teachers without interruption though his disease keeps him in the hospital or at home for several weeks at a time.

Dominique Marchand, of Juno Online Services, can be reached at **(212)478-0800** for more on Killis Foster's education and computers. Juno's free software can be had by calling **(800)654-5866** or **mailto:signup@juno.com**

EDUNET

Edunet is an electronic confessional booth, therapist's couch, coffee table, and lecture podium for a diverse group of educators and students. Teachers perplexed by the sardine-in-a-can approach to Advanced Placement Tests and student-teachers run over in the classroom by learning disabled (LD) and attention deficient disorder (ADD) students join together to boost each other's esteem and offer lists of strategies to overcome disheartening situations. Recently, I found a list of over 50 positive expressions a teacher can use to bolster a student's self esteem and the course outline and behavioral objectives for a seventh grade world geography course. To take advantage of some wonderful collective wisdom, send **mailto: edunet@iastate.edu** and enter the message **sub scribe <your e-mail address>**.

GEORGE'S AND THOMAS' AMAZING DIGITAL ADVENTURE

The personal papers of George Washington and Thomas Jefferson, long preserved in the archives of the Library of Congress (LOC), will soon be available online courtesy of Reuters America, Inc. and The Reuter Foundation. The papers will become part of the National Digital Library, a project in which the LOC goal is to digitize 5 million documents by the end of the year 2000. The 90,000 documents that make up the Washington and Jefferson archives will start coming online in early 1997. A printed text of each document and a picture of the original hand-written extant archived document will be available. Among the items that will become available at the computer address are Washington's Thanksgiving Proclamation of 1789 and many of his diary entries. Go to **http://www.loc.gov** and start your digital excursion with Digital Library Collections.

THE K-12 BROWSER

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Browsers of **http://www.sonoma.edu/cthink/** will find information on the theory and



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practice of critical thinking. Techniques for teaching critical thinking, an online resource center of instructional material, an electronic library with articles and reference materials, and even a list of conferences on critical thinking education are all available at this site. A tip of the thinking cap to Sonoma State University for providing this resource.

A free electronic magazine published by Jamie McKenzie focuses upon the impact of technology on teaching and learning. ***From Now On: The Educa-tional Technology Journal*** is at **http://www.pacificrim.net/~mckensie/**

Demographic information on public school systems in the U. S. is provided by Model Education Systems Associates at **http://www.sunspace.com** for the purpose of encouraging research on educational technology. A database covering school system resources, elementary and secondary curricula and the acceptance and use of new technologies can be searched for new standards, student populations and successful applications of technology.

Reference

The University of Michigan at Dearborn presents at **http://www.umd.umich.edu/lib/vrd/** the Virtual Reference Desk; this Web page graciously provides links to other Web pages with almanacs, dictionaries, map collections and other often-used, quick reference items.

Science

Cornell University provides ***SciTech***, an advanced placement and undergraduate magazine containing feature stories, news, research, and editorials that are written by students and relating to the natural sciences and engineering; send your students to **http://www.englib.cornell.edu/scitech**

The Army Times Publishing Company offers Space News Online which contains news, features, interviews, photographs, files, links to other Web sites and even a store, all related to space science. Have a student do independent research on a regular basis and present it to the class on information gathered from **http://www.spacenews.com**

THE COLLEGIATE BROWSER

Medicine

Purdue University provides info about academic programs, fellowships and grants, job listings, publications, conference announcements at **http://bme.www.ecn.purdue.edu/bme/** for biomedical engineers. All U. S. 1995 patents can be searched at this location also.

The Center for Bioethics maintains a home page at **http://www.med.upenn.edu/~bioethic/genetics.html** that presents issues focusing upon ethical, legal, social and public policy; the site also contains links to resources on bioethics, library resources and a discussion group on ethics and genetics.

Dentistry professionals, students, and faculty focusing upon disease and its prevention, affordable dental health care, statistics and current research can join the "Dental-public-health" mail list by sending **mailto:majordomo@list.pitt.edu**

The American College of Sports Medicine at **http://www.al.com/sportsmed** presents education, research and practical applications of sports medicine and exercise. Browsers may find information on the group's health and science policies, certification programs, continuing-education courses, research grants, and student financial aid.

CHEMISTRY AND ENVIRONMENTAL SCIENCE

The International Rivers Network maintains a home page on the WWW for researchers, scholars, and graduate students who are interested in preserving and restoring rivers and their ecosystems. International preservation programs, journals and books related to river development, and environmental news and alerts can be found at **http://wwwirn.org**

The electronic edition of Chemical Week is available on a subscription basis at **http://www.chemweek.com.** It offers news of the chemical industry for scientists, researchers, faculty and students. Current research, discussion forums, links to industry resources on the Internet and upcoming conferences are gathered together at this web site.

The Consortium for International Earth Science Information Network presents information on the study of the environment and economic development at **http://www.gateway.ciesin.org**. Keyword and Boolean searches of NASA's Global Change Master Directory, The Committee on Earth Observation Satellites Internation-al Directory and the National Oceanic and Atmospheric Administrations' Environmental Directory can be performed.

The Nature Conservancy offers a Web page of information on rare and endangered species and their efforts to protect them. Browsers can search data files on conservation programs by states and regions and offer comments in discussion groups. The site, **http://www.tnc.org**, also offers an international database on biology and conservation, entitled Scientific Resource Center which is designed for teachers, students, and research conservationists.

A monthly newsletter, with a discussion group, for active citizens, students and faculty concerned with the environmental movement can be joined at **mail to:Lmajordomo@igc.apc.org** or **http://www.islandpress.com**

Reference

The Uncover Company is rolling out a new means to reach its database of nearly 18,000 periodicals and over eight million articles. Title, author, journal, or keyword searches are now done using Uncover Web at **http://www.carl.org/uncover**. Users who have an account with the company or have a credit card can order documents electronically.

The "Electronic Theses and Dissertations in the Humanities" directory of online references and resources is offered by the University of Virginia at **http://osi.lib.virginia.edu/ediss/edis.html**. It is available as a database that can be browsed for electronic dissertations and projects in progress and a bibliography on scholarly publishing. ◆

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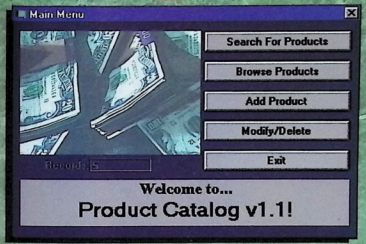
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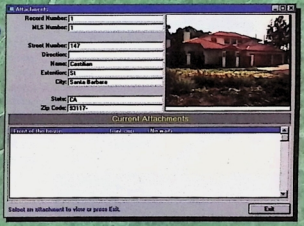


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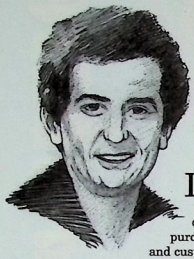
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THE RACE TO CATCH THE LEADERS

by A. David Silver

GEORGIA STILL FIGHTING THE CIVIL WAR

ISPs now have some idea of what dial-up customers are worth: approximately $230 each in cash and notes. That's the extrapolation of MindSpring Enterprises' July 1 purchase of PSINet's 100,000 dial-up accounts and customers, in a deal worth $23 million.

A. David Silver is the Managing Director of Santa Fe Capital Group, Inc., an investment banking firm, and the author of Quantum Companies II, Peterson's Publishing, Inc., which describes the sixty-three fastest growing Internet companies in the U.S. Contact David at (505) 983-1769 or mailto: adsfin@ix.netcom.com

Dedicated leased line and corporate Web site customers are more difficult to value. Business customers pay more for their services, are less apt to jump to a new provider, pay by check rather than credit card and require less customer service. Their acquisition prices range from $750.00 to $1,500.00 per subscriber.

For the average ISP, one with 2,000 to 2,500 dial-up subscribers and 20 to 25 corporate accounts, the valuation range is approximately $475,000 to $613,000. This range probably includes 80 percent of the nation's ISPs.

To a 25 year-old ISP entrepreneur who has invested $75,000 to $100,000 in equipment, and covered about $50,000 in start-up losses, selling out to one of the national or super-regional ISPs, represents a gain of nearly $400,000, or a little under $300,000 after taxes. Not a Gatesean return by any means, but enough money in the bank to launch a second venture.



With the removal of PSINet from the top 10, the bottom six ISPs move up and the search is on for number 10. After an intensive search worthy of Adam Dagleish, we selected CRL Network Services, Inc., a San Francisco, CA national service provider. Founded by Jim Couch, age 31, in the late 1980's, CRL is a national backbone provider a la AGIS/Network 99, Detroit, MI, and Epoch Communications Corp., Irvine, CA. Couch, who pilots his own plane to the Company's 40 POPs located throughout the country, is a hands-on manager who oversees a staff of 75 personnel from behind a black marble desk surprisingly free of papers. CRL services 800 cities, and, although it does not market connectivity to dial-up subscribers "We'll take them", says Couch, "Particularly if it is required by the Company that lease a DS3, T3 or T1 to."



CRL NETWORK SERVICES

Couch will not discuss the number of corporate accounts that subscribe to CRL's network. He proudly says, "We lease DS3s to more than 20 corporations."

Other shifts among the top 10 include Concentric dropping two rungs on the ladder, and falling into nearly a tie with IDT Corp. that added 20,000 subscribers in six weeks. EarthLink continued its hot pace, as its Red Herring posts a market value to subscriber ratio of about $1,400. For every 720 new subscribers, UBS Securities, Inc., EarthLink's underwriter, will hand Sky Dayton, the Company's CEO, another million dollars. Such is the love affair between Wall Street and ISPville.



MindSpring

And who is MindSpring? Backed by the brilliant Lanier brothers of word processing and cellular phone billions, MindSpring knows an arbitrage when it sees one: buy at $230, then finance the PSINet purchase with a secondary offering at $1,400. That's a 600% return on investment. The South didn't win the Civil War, but the Laniers from Georgia may win the battle of the Internet before the dust settles.

THE 10 LARGEST U.S. ISPs

(Mid-June, 1996)

NAME	DIAL-UP SUBSCRIBERS	NEW SIGN-UPS/WEEK	VOICE PHONE HOME PAGE	MTHLY $/HRS./$ PER ADDTL. HR
Netcom	435,000	5,700	(408)983-5950 http://www.netcom.com	$19.95/ul/na
Spry Net (a)	145,000	6,000	http://www.sprynet.com	$19.95/ul/na
Global Network Nav (b)	145,000	4,000	(703)918-1802 http://www.gnn.com	$14.95/20/$1.95
EarthLink	127,000	5,700	(818)296-2400 http://www.earthlink.net	$19.95/ul/na
MindSpring	125,000	1,500	(404)815-0082 http://www.mindspring.com	$19.95/ul/na
Concentric	115,000	7,000	(517)895-0500 http://www.cris.com	$19.95/ul/na
IDT Corp.	114,823	4,500	(201)928-1000 http://www.idt.net	$15.95/ul/na
Internet America	30,000	1,000	(214)-861-2999 http://www.airmail.net	$19.95/ul/na
TIAC	26,000	800	(617) 276-7200 http://www.tiac.net	$29/100/na
CRL Network	11,000	500	(415)837-5300 http://www.crl.net	$17.95/ul/na

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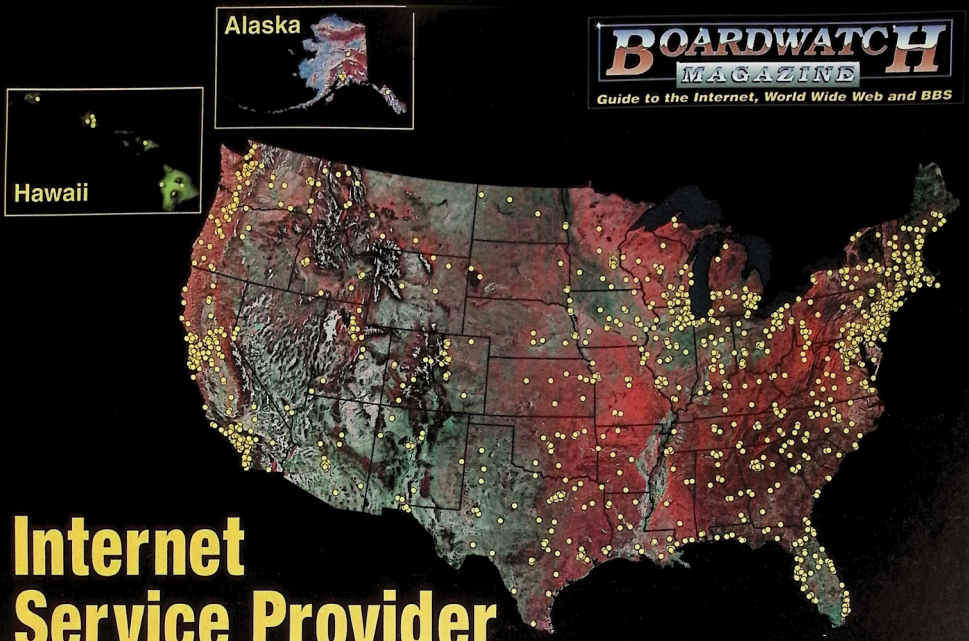
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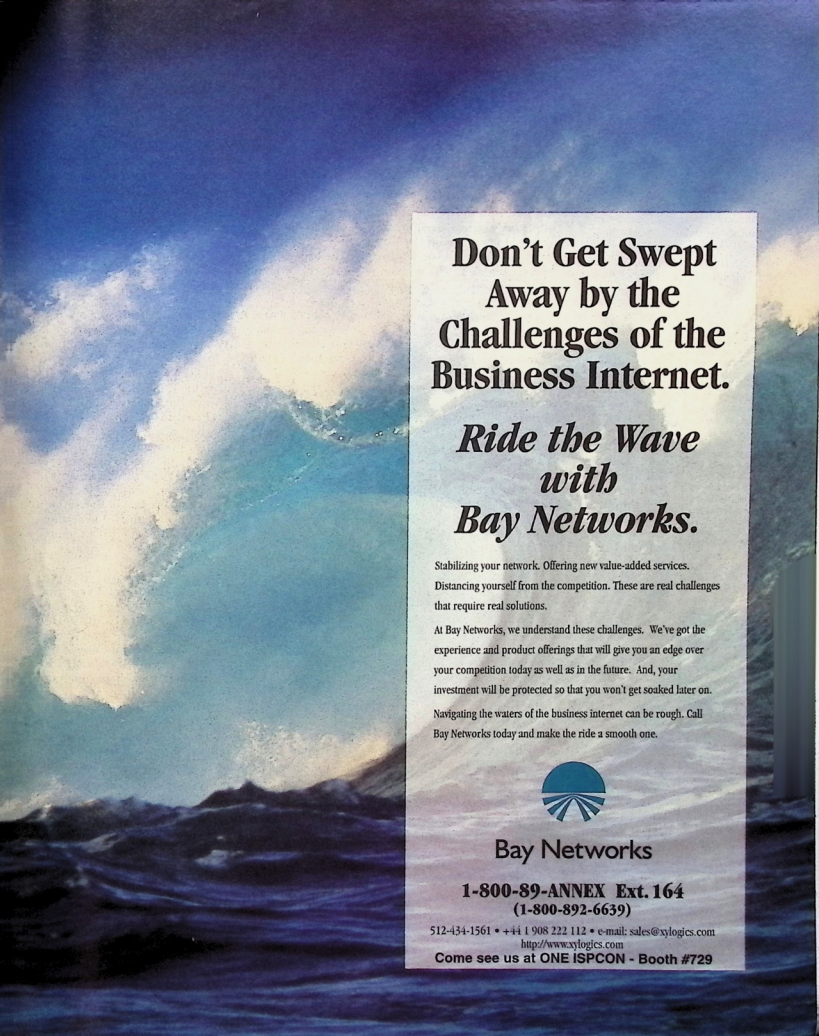


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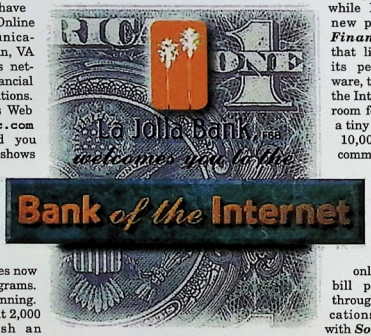
MANNING THE WIRES

by Ric Manning

MORE BANKS OPEN BRANCHES ON THE NET

When Security First National Bank (**http://www.sfnb.com**) opened its electronic banking service on the World Wide Web this time last year the Atlanta-based bank was a lone wolf on the electronic frontier. A handful of large banks had created Web sites as promotion tools, but none had ventured as deeply into electronic banking using the public Internet.

Today the lone wolf has become a pack on the hunt. According to a recent report by the consulting firm Booz Allen & Hamilton, nearly 300 banks currently have a presence on the Web. Online Resources & Communications Corp. is a McLean, VA company that develops network software for financial and investment institutions. Dial up the company's Web site (**http://www.orcc.com/banks_na.htm**) and you can browse a list that shows online bank sites in almost every state and several foreign countries.



Eight of the top ten bank holding companies in the United States now have PC banking programs. And that's just the beginning. Booz Allen predicts that 2,000 banks will establish an Internet presence over the next four years with at least 500 of them offering some sort of advanced home banking services. Killen & Associates, another consulting firm, thinks the Booz Allen's estimate is low. They say the number online by 2000 will be closer to 4,000.

Why the rush? Didn't bankers go down this road before? They've been talking about home banking since the 1970s. But back then, only a tiny fraction of the population had home computers. Home banking was dependent on telephone keypads, cable TV systems and primitive software.

Today about one-third of the nation's homes have computers. More importantly, banks now see home banking as a critical element in their future, not simply a gimmick to attract customers from the techie fringe. And in this era of mergers and consolidations, banks are discovering that any time they can close branches and eliminate jobs, the savings go to the bottom line.

The expansion of online banking is also being fed by a flurry of new products and services aimed at the banking industry. Some examples:

Protocol wars: ***Intuit Inc.*** and ***Microsoft*** are both stepping up their efforts to form alliances with banking institutions. Thirty-seven banks have signed up to use Intuit's ***Quicken Financial Network*** to handle banking transactions. Meanwhile Microsoft launched a new protocol called ***Open Financial Connectivity*** that links Microsoft Money, its personal-financial software, to bank computers over the Internet. There's plenty of room for choosing sides; only a tiny fraction of the nation's 10,000 banks have made commitments to an online banking system.

Personal digital banker: ***Visa*** and ***General Magic*** recently unveiled software that makes online account access and bill payment available through hand-held communications hardware starting with ***Sony's Magic Link PIC-2000***. The software is meant to be marketed by financial institutions that are Visa members. Using Magic Link's built-in modem, users can pay bills, access and update account information and transfer funds.

Netcards: ***Block Financial***, an H & R Block company, created ***WebCard Visa***, a new credit card that gives cardholders 24-hour access to their account information. Details about the card are on Block's Web site (**http://www.conductor.com**).

Code competition: Southern California's ***Digitology Inc.*** has joined Atlanta-based ***Five Paces Software*** in pitching an Internet banking system. Five Paces wrote the code that runs Security First Network Bank. Digitology says its system is designed for small and medium-size banks and thrifts. The company's first customer is ***LaJolla Bank*** (**http://www.ljbank.com**), which uses its Web site

Ric Manning writes about business technology, computers and consumer electronics for ***The Courier-Journal*** in Louisville, Ky. His weekly column called *Home Tech* is distributed to more than 80 newspapers by the Gannett News Service and it's available on the World Wide Web **http://iglou.com/gizweb**

Ric was the founding editor of ***Plumb*** and ***Bulletin Board Systems***, two newsletters that covered the BBS arena in the early 1980s. His freelance work has appeared in several magazines including ***PC/Computing***, ***Mobile Office***, ***PC Week*** and ***Home Office Computing***. Ric lives in Southern Indiana with his wife, two children and a champion Weimaraner. Write to Ric at **mailto:rlcman@iglou.com**

not only to manage checking accounts and other banking services but also to market certificates of deposit, money market and other investments.

Bankchat: Some banks are discovering that along with electronic transactions and marketing, the Internet can also be a dandy communications tool. ***Nations-Bank Corp.*** and a company called ***Treasury Strategies Inc.*** has created a World Wide Web site that lets bankers yak with each other like the kids in the AOL chat rooms. The Treasury Connection, based at the NationsBank Web site (**http://www.nationsbank.com**) is designed for corporate treasurers, bankers, and academics. But it could be the forerunner of an Q & A service for consumers.

Virtual swipers: ***Verifone***, the California company that makes many of the credit card swiping machines found in retail stores, has worked a deal with ***Netscape Communications Corp.*** to make payment authorizations on the Web. If the system works, it could reduce some of the fear bankers and merchants have about the security of online financial transactions.

Banks are also eyeing ***Sun Microsystems' Java*** as a way to cheaply distribute customized information to their clients. Instead of creating and supporting large-scale proprietary programs, Java will let financial institutions create smaller, more focused applications such as personalized account statements and investment reports.

Here's a look at what banks are doing on the Web:

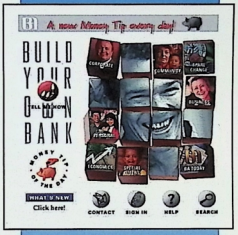
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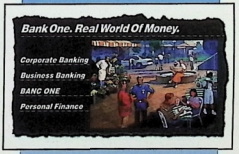
The B of A folks call it building your own bank. Fill out a personal profile online. Then, each time you return to the bank's Web site, you'll get a collection of money tips customized to your interests.

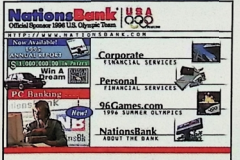
Toronto Dominion Bank
(**http://www.tdbank.ca**)

Perhaps the largest bank site on the Web, Toronto Dominion offers more than 3,500 pages of information. In addition to extensive news reports, you can use the site to get details about mortgages, trusts and mutual funds and advice on how to buy a house. You can even find the names of the people who manage the bank's investment funds and look up the fund's performance over the past 10 years.











NationsBank
(**http://www.nationsbank.com**)

The bank's online consumer service works with the Managing Your Money personal finance software. The bank has a toll-free support line and a service for electronic bill payments.

netBank
(**http://banking.com/netbank**)

This Atlanta-based Internet bank offers the usual collection of services, including an electronic checking account. There's also a mortgage calculator, a loan calculator and a form to fill in for a financial "life plan."

SMALL STUFF

First Chicago NBD Corp.
(**http://www.fcnbd.com**)

First Chicago covers the online market with a Web site and services on Prodigy and America Online. Customers can log on for information about credit cards, investment services, small business banking and international cash management.

Bank One
(**http://www.eft.bankone.com**)

The Ohio-based bank would seem to have a cool idea: a "five minute mortgage" that offers to prequalify mortgage customers before they go house shopping. But here's the catch: it's not online. You have to call the bank and fill in a form using a telephone keypad. Yuk!

Salin National Bank
(**http://www.salin.com**)

Not all of the online pioneers are big-city banks. Salin National serves Kokomo, Logansport and a handful of smaller towns in the corn country of West Central Indiana. Salin offers special CD rates for people who visit the Web site. And, like many small-town banks, it posts a community calendar that lists summer reading programs and puppet shows at the local library.◆





THE DEREGULATION FEEDING FRENZY

LOCAL CARRIERS CAUGHT GOUGING

by Bill Gram-Reefer

In a recent decision, the Supreme Court let stand a Federal Communications Commission order that makes 49 local telephone companies repay **$83 million** in excessive earnings to AT&T, MCI and Sprint Communications for overcharging the long-distance companies for access to local lines. Local companies had complained that they were wrongly ordered to pay damages because there was no finding that any specific rates were in fact unreasonable. The locals also whined that they shouldn't be fined retroactively because they just couldn't figure out whether their rates would be above a maximum earnings rate established by the FCC.

Bill Gram-Reefer, based in Concord, CA, is president of WORLDVIEW, specializing in connectivity and communications. His Online Services column appears monthly in *MicroTimes*. His amateurish web page can be accessed at **http://worldview-bbs.com**. E-mail Bill at **reefer@worldview-bbs.com**

ROPE-A-DOPING ISDN

As PacBell's boxing match with the California Public Utilities Commission goes into the middle rounds, Utah's ISDN consumers and computer companies like Intel are picking a fight with U.S. West. Claiming U.S. West ISDN pricing is a low blow that stifles ISDN deployment and use, witnesses before Utah's Public Service Commission pleaded for lower rates. U.S. West, the only provider available for 97 percent of Utah's telephone lines, deftly counter punched by trotting out the fiction that ISDN is a "premium" service, insisting its various plans ranging up from $39 plus 3 cents per minute were competitive. However, consumers showed that other states were setting rates typically between $25 and $40 per month for unlimited ISDN service. New Mexico, for instance, ordered U.S. West to charge $40 per month for unlimited residential access to an ISDN tube and $70 per month for unlimited business access.

Meanwhile, the Texas Public Utility Commission handed down a new tariff for the Southwestern Bell (SBC) that will cut by almost one-half the installation charge for digital (ISDN) phone lines. Fees were reduced from $485 to $250, while monthly rates for the service stay at $57.70. According to SBC sources, ISDN is available to about 90 percent of Southwestern Bell customers. By fall, virtually all Texas customers will have ISDN access.

ADSL: ISDN KILLER?

All of the bickering about ISDN pricing may be a day late and a dollar short. With implementation lagging and high pricing for most residential users, ISDN's 128-Kbps bonded speeds hold no candle to the promise of 5- to 10-Mbps throughput to the home via cable companies like @Home by TCI.

In response to these cable efforts, several telcos are gearing up Asymmetric Digital Subscriber Line (ADSL) service. This modem technology is able to transmit more than 6 Mbps downstream or 640 Kbps bidirectionally using existing twisted-pair telephone lines. Positioned as a technological fix until the arrival of fully implemented ATM (Asynchronous Transport Mode) that may take decades to install, ADSL could literally transform the existing public information network and increase capacity by a factor of 50 or more without having to install new cabling.

ADSL is an ANSI standard developed by the T1E1.4 committee which defines high-speed modems using twisted-pair wire. An ADSL circuit connects two ADSL modems on each end of a twisted-pair telephone line, creating three channels: a plain old telephone service channel (POTS), a medium speed bidirectional channel, and a high-speed downstream data channel. Current offerings show high-speed channels ranging from 1.5 to 6.1Mbps, while the bidirectional channel provides duplex signaling at rates of 16- to 640 Kbps. The POTS channel is split off to maintain secure telephone service even if the high-speed channels are inactive or incapacitated. Products with downstream rates of up to 9 Mbps with duplex rates of 640 Kbps should be available by the end of this year.

Current ADSL products can span anywhere from 9,000 to 18,000 feet (2.7 Km to 5.5 Km) depending on data rates. Promoters of ADSL insist that these capabilities can cover up 95% of a telco's loop plant depending on the data rate. The vision for ADSL deployment is to connect users from their door or from the curb at their home or business to fiber-quality transmission by using ADSL to connect the "last mile."

In comparison to ISDN, not only is ADSL faster but it is also capable of providing simultaneous telephone and data transmission service over the same single pair of copper wires. Furthermore, analog devices like fax machines can be used on the POTS channel where in most cases, ISDN requires digital devices.

Over 30 telcos have successfully tested ADSL devices. Telco players include Ameritech, Bell Atlantic, Sprint, and U.S. West, while Pacific Bell recently joined the fray with its XDSL strategy. Leading developers include AT&T Paradyne pushing its proprietary CAP compression standard, PairGain Technologies, Motorola Semiconductor, Ericsson Telecom, Samsung, Newbridge Networks, U.S.Robotics, Tut Systems, and Harris semiconductors.

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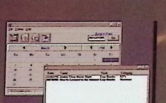
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According to the ADSL Forum, an industry group promoting the technology, "telephone companies around the world will have little choice" but to use ADSL technology once the devices reach suitable levels of integration and cost.

At the integration level, development agreements between the major players are helping to shape a robust, interoperable platform. Ericsson, a leading provider of access network solutions, and Motorola Semiconductor have partnered to jointly develop an ADSL access solution based on Motorola's transceiver which supports STM and ATM transmission speeds of up to 8 Mbps. Aimed at the high-speed Internet access, remote LAN access, and interactive video services markets, Ericsson will market the product as the COBRA AT 8 (Copper Broadband Access).

Meanwhile, Motorola is also working with Amati, licensing that company's Discrete Multi-Tone (DMT) line code technology to provide a single chip solution to OEMs. Ongoing technology deals like this will certainly increase functionality and reduce the cost and power consumption paving the way toward mass production. Additionally, while current ADSL products offer T1/E1 and V.35 digital interfaces for signal transmission, future versions will offer standard LAN interfaces as well to accommodate both continuous and variable (ATM) bit rates. It won't be long before ADSL gets integrated to the point of being a PCI, USB (Intel), or Firewire (Apple) card one can simply install in a computer.

More recently PairGain Technologies Inc. announced that it has signed a licensing agreement with AT&T Paradyne Corporation. Under the agreement, PairGain will develop Asymmetrical Digital Subscriber Line (ADSL) solutions based on AT&T Paradyne's Globespan carrierless amplitude/phase modulation (CAP) transceiver technology. With this agreement, PairGain is expanding its comprehensive line of megabit access products for Internet and telecommuting applications. PairGain will round out its product mix by expanding its Megabit Modem and EtherPhone lines.

Field trials are now taking place. For instance, !NTERPRISE, the data networking arm of U.S. West (**http://www.w3.uswest.com/interact.intro.html**) recently conducted technical trials of ADSL technology in the Boulder/Denver and Minneapolis/St. Paul markets using PairGain's Megabit Modem products. The Megabit Modems make use of the existing copper wire infrastructure, and operate at speeds of 768 Kbps bidirectional. That's over 10 times the performance of single-channel ISDN and more than 26 times faster than state-of-the-art 28.8 V.34 modem technology. The technical trial will be followed by a market trial in the fall before more widespread deployment in 1997.

Interestingly, U S West Communications Group says it will spend close to $10 million to upgrade telephone lines in Colorado this year "as part of improved services for Internet service providers and other companies with high-volume transmission needs." One should not be surprised if this includes ADSL modems at switching stations.

It's a good bet that ADSL will play an important role in telecommunications over the next couple of decades. It's going to take that long for the broadband bidirectional cabling to be deployed. In the meantime, ADSL will be able to zip video, remote CD, live television and group conferencing into businesses and homes. Telcos offering new ADSL services will need to reach as many new subscribers as possible during the coming introduction periods. Otherwise cable companies installing bidirectional cable may gain a significant foothold that could slow down ADSL's penetration. This will most likely mean hyper-aggressive, take-the-beach marketing and pricing compared to the telcos' failed implementation of ISDN. And you thought the AT&T/MCI commercials got nasty. Copper vs. Cable? The war has just begun. First victim: ISDN.

BLOODLESS COUP?

By suicide, probably, as AT&T Paradyne's GlobeSpan RADSL high-speed modems are set to hit the streets. GlobeSpan RADSL technology is important because its transmission speed is rate adaptive based on the length and signal quality of an existing telephone line. RADSL products will have the option to select the highest practical operating speed automatically or as specified by the telecom service provider. This variable rate feature ensures high quality service to all customers, even those residing a long distance from the telephone company's nearest equipment location. Initial availability (with downstream data rates up to 2.3 Mbps and upstream data rates up to 1 Mbps) is scheduled for August 1996. The full range of automatic rate adaptive speeds (up to 7 Mbps downstream) will be available in November 1996. Check out the Globespan data sheets if you like at **http://www.paradyne.com/products/GlobeSpan/glbe_ndx.htm**.

MORE COMPETITIVE INVASIONS

Nynex has announced it has filed requests to resell long distance telephone service in Arizona, California, Florida and Illinois.

BellSouth (copper) and ***Time Warner*** (cable) have signed a two-year agreement which will let Time Warner provide local phone service in direct competition with BellSouth. This is the first regional interconnection agreement signed by BellSouth that complies with key requirements detailed in the national telecommunications legislation enacted earlier this year. The agreement applies to the entire nine-state Bell-South region including Florida, North Carolina and Tennessee, BellSouth's top markets with over 10 million phone lines.

MFS Communications Company (MFS) and ***Ameritech*** have done a landmark agreement where MFS will be able to begin broad based local exchange services throughout Ameritech's entire service territory including Illinois, Indiana, Michigan, Ohio and Wisconsin. Ameritech has also agreed to let U.S. Network (USN) resell Ameritech's services and products to small to mid-sized businesses throughout Ameritech's Ohio territory. USN sources say customers will experience no interruption in their phone service and can keep their current phone numbers. ◆

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PUTTING THE NET TO WORK

by Durant Imboden

MICROSOFT FRONTPAGE 1.1

Last winter, Microsoft and Netscape battled for the privilege of buying a small Massachusetts-based company named Vermeer Technologies. Microsoft won with a rumored bid of $130 million, but the big prize wasn't Vermeer — it was the company's product, a high-end Web publishing tool called ***FrontPage 1.0***.

Durant Imboden is a freelance writer who manages the Writing forum in the Arts & Entertainment category of The Microsoft Network. His credentials include published novels, articles, and short stories; fiction editing and staff writing for *Playboy*; representing authors at a New York literary agency; and freelance copywriting for Lotus, Apple, Northwest Airlines, US West, and other national advertising accounts. When not typing, Durant is a volunteer announcer at local, state, and sectional figure-skating competitions. Mailto: `Durant_Imboden_MSN` on The Microsoft Network or `writing@msn.com` on the Internet. The author is not an employee or spokesman for Microsoft.

Today, an upgraded version of the application that cost Microsoft $130 million can be yours for just **$149**, with a $40 rebate if you own MS Office 95. That's nearly $550 less than FrontPage was selling for in its one-dot-oh version, and it suggests that Microsoft will have to sell a lot of copies to recoup its megabuck (or megastock) investment.



Is FrontPage worth its new mass-market price? Definitely. But it has its downside, too — especially if you're an Internet Service Provider. We'll get to that later, after I've described what makes FrontPage a unique and exciting tool for creating Web sites.

FRONTPAGE 1.1: THE PACKAGE

Unlike HotMetal, HotDog Pro, PageMill, and similar programs, FrontPage isn't just an HTML editor — it's a comprehensive package for developing, publishing, and maintaining Web sites. At present it's available only for Windows 95 and NT, but a Macintosh version is due later in the year.

The program is made up of four parts:

- ***FrontPage Explorer***. A graphical site manager that makes it easy to combine HTML pages into large and complex Webs.
- ***FrontPage Editor***. A mostly WYSIWYG authoring tool that generates HTML code behind the scenes as you format text in an environment that resembles Microsoft Word.
- ***Personal Web Server***. A mini-server that installs on your PC, allowing to you stage and test Webs locally before uploading them to your Web server or ISP.
- ***Server Extensions***. Free add-ons for various Windows NT and UNIX servers that let you invoke FrontPage "Web-Bots" to replace custom CGI scripts.

System requirements are a 486 or higher PC with 8Mb RAM in Windows 95 (16Mb in NT) and 15Mb of available hard-drive space. I tested FrontPage on a 486DX4-120 with 24Mb RAM, and performance was more than adequate.

FRONTPAGE EXPLORER

Microsoft seems to be on an "Explorer" kick these days. But FrontPage Explorer has little in common with Windows 95 Explorer or Internet Explorer. Instead of being a file manager or a browser, it's a graphical tool for creating, organizing, publishing, and maintaining Webs.

FrontPage Explorer has three views:

- ***Summary*** View is a list (like the "details" view in Windows 95 Explorer) that shows each file's title, size, type, date last modified, who modified it, page URL, and author comments.
- ***Outline*** View is a tree view of your Web site. Double-click on any page, and the tree expands to show that page's links.
- ***Link*** View is a graphical view of your pages and links. When you highlight a page in Outline view, that page occupies the center of the Link View pane. Connecting lines radiate toward linked pages, external URLs, and special items such as "mailto" links. If any link is broken or incomplete, a split icon will alert you to the fact.

You can also use a "verify links" command at any time to produce a list of hyperlinks that need fixing.

When you open FrontPage Explorer, you'll typically see two panes: the Outline View on the left, and the Link View on the right. Click "New" to create a Web, and you're offered a list of templates and wizards. FrontPage's standard choices include Normal Web, Corporate Presence Wizard, Customer Support Web, Discussion Web Wizard, Empty Web, a Learning FrontPage tutorial web, Personal Web, and Project Web. (Note: You can save individual pages as templates, just as you might do in Microsoft Word. And you can download the FrontPage SDK from **http://www.microsoft.com/frontpage** if you'd like to build custom wizards and templates for entire Webs.)

Once you've created your Web, you can save it locally on the Personal Web Server or store it on a remote server. You'll normally open this Web every time you work in FrontPage, double-clicking on a page icon or clicking a toolbar button to launch the FrontPage Editor.

Later, when you're ready to publish, you can copy the entire Web to a server that has the FrontPage server extensions installed, or you can use a "Publishing Wizard" from the Microsoft Web site to automate directory and file uploads by ftp to a server without the extensions. The Publishing Wizard warns you of any FrontPage features (such as "bots," or automatically generated CGIs) that aren't supported by the target server.

Other handy Explorer features include a "To do" list, automatic recalculation of links for renamed or moved Web files, and permissions settings for administrators, authors, and end users.

FRONTPAGE EDITOR

If you like Internet Assistant or Netscape Navigator Gold, you'll fawn over FrontPage Editor. It's as WYSIWYG as an HTML editor can be, and it has more bells and whistles than a parade of London bobbies on bicycles.

To use Microsoft's description, FrontPage Editor has an "Office look," with floating toolbars similar to those in Word for Windows 95. It shares the Office spellchecker and can be launched from an Office application.

FrontPage Editor 1.1 is a major improvement over Vermeer's 1.0 release. It offers tables (including nested tables), font colors, active link colors, WYSIWYG image alignment, and multiple-level undo. Netscape-style blinking text is available for authors who want to inspire motion sickness.

On the other hand, a few of Microsoft's own Internet Explorer browser features are missing — such as marquees, background colors for tables, font face, and the borderless frames introduced in IE 3.0. However, an "HTML markup bot" lets you insert your own tags or other HTML code, so these omissions are minor nuisances for advanced users.

Frames are supported by a "frames wizard" that you select with the File New command. You can choose any of seven frames templates or design your own through a series of dialog boxes. The File New dialog includes other templates and wizards, too — such as a table of contents, bibliography, confirmation form, guest list, FAQ, press release, survey form, user registration, and office directory.

One of the handiest features is the "forms page wizard," which uses a series of dialogues to help you devise custom online forms based on standard questions, controls, and data items. The data that you harvest can be saved to a Web page, stored as a text file, or used with a custom CGI script.

"But who needs CGI scripts?" you ask. Answer: not you, if your requirements are met by the "WebBots" that are built into FrontPage 1.1. Several worth mentioning are the "search bot" (used to provide full-text searches), the "registration bot," and the "discussion bot" (for creating moderated or unmoderated Web forums). There is one catch: the more advanced bots won't work unless FrontPage extensions are installed on the server.

As if to provide a consolation prize for this "gotcha," FrontPage Editor supplies other gee-whiz features:

- To create a link between another Web page and the page you're working on, just drag the page icon from FrontPage Explorer into the Editor window.
- You can import TIFF, BMP, EPS, PICT, and many other graphics formats directly. FrontPage will convert them to GIF or JPEG format. Next, double-click on the resulting image to make your GIF background transparent or set the compression ratio for your JPEG file.
- Image maps take only seconds to create, using a choice of control shapes in a special toolbar. You're prompted for links automatically, or you can double-click on an existing "hot spot" to bring up a dialogue box. You can later decide whether to handle image maps on the server side, the client side, or both.

NITS AND NAGS

FrontPage 1.1 is a groundbreaking program, but it's still a little rough around the edges. For example:

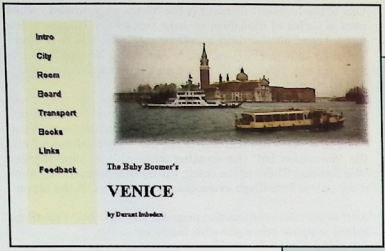
You can view or enter HTML code with the FrontPage Editor, but you can't edit the code once it's in place. For that, you'll need a program like HotDog or Notepad.

The interface has a few quirks. To set the width of a table, you go to the Table menu, click "Select table," then click "Table properties." But to change the width of a column within that table, you're forced to click "Select column" in the Table menu and then use the Edit menu to set "Properties."

Finally, you can't use your mouse to adjust column width as you'd do in FrontPage's role model, Microsoft Word.

Without digging through the help file or reading the FAQ at Microsoft's Web site, there's no way to be sure what features will work if your MIS department or Internet Presence Provider refuses to support FrontPage. I'd like to see an Options setting for "My remote server has/does not have the FrontPage server extensions." If the user checked "does not have," the FrontPage menus would hide or "grey out" unsupported features.

The FrontPage manual is a skimpy Getting Started booklet with about 20 pages of text. The online help file is fairly comprehensive, and Microsoft's Web site is well-supplied with technical information, but I've seen better manuals in SuperMunchers and Pizza Tycoon.



I never did succeed in copying my sample FrontPage Web to an ISP's test server, even after being walked through the procedure. And when I tried using Microsoft's Publishing Wizard to deploy a stripped-down Web, the wizard choked and gave a mysterious ftp error. (I finally gave up and uploaded the folders manually via ftp. You can see this FrontPage-authored site, ***The Baby Boomer's Venice***, at **http://www.writing.org/venice.htm**)

IS IT WORTH IT?

Make no mistake: Despite its shortcomings, FrontPage 1.1 is the definitive publishing application for the Web. It combines the functionality of Adobe's Page-Mill and SiteMill, and then some, in a tightly integrated package that's priced to leap off the shelves at your local GeekUSA store. I give it an "eight thumbs up" rating (which is another way of saying 8 on a scale of 10, since I'm known for being all thumbs).◆

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ISPs BALK AT REBOOTING

FrontPage 1.x has a dirty little secret that has eluded reviewers in ***PC Magazine***, ***PC/Computing***, and the rest of the mainstream computer press. (It would have eluded me, too, if I hadn't been alerted by Rich Johann of I-Pipe, Inc. in Richmond, Virginia at **http://www.inet1.com**.) Here's the scoop, as reported in Microsoft's own Web Hosting FAQ at **http://www.microsoft.com/frontpage/ispinfo/hosting_faq.htm**:

"Does the server need to be restarted each time my customers create a new web?

"Yes. This is because FrontPage needs to re-read the configuration file which has had ScriptAlias commands added for the new web."

The FAQ goes on to suggest possible workarounds, such as limiting customers to a root web or having rescheduled start times at weekly intervals.

What do Internet service providers think of this? Rich Johann says:

"We host around 125 websites in 16 domains and update our server dozens of times a day. We can't afford to reboot every time there is a change in FrontPage. The reboots would block access to the site for hundreds or thousands of webheads every day. We can't afford to be arrogant and say, 'Come see our websites, but only when WE feel like it!'

"The beauty of the web is its ability to change and morph on the fly. We'd hate to restrict FrontPage reboots to Sundays at 10 AM — then we'd lose the vitality of our websites.

"I'm a firm believer in MS products — we run MS Internet Information Servers on NT — but I'm naturally reluctant to potentially penalize my installed websites to try out an evolving product."

At BBSnet Worldwide in Rhode Island (**http://www.bbsnet.com**), John O'Donnell has harsher words for the FrontPage server extensions:

"That one's close to strike three. The FrontPage programmers don't have a unique corner on stupid mistakes — everyone seems to be making stupid mistakes. But this one is close to the top."

O'Donnell concedes that the reboot problem isn't insurmountable. "If you had a large Web farm with mirrored servers, you could reboot a different server every hour, and users would never be affected." He adds that a company like BBSnet could install an offline server, or staging server, where customers would upload their new Webs. "The customer would notify us by e-mail, and we'd be able to copy the new Web onto the regular servers within 10 or 15 minutes in most cases."

As for Microsoft, it's getting a bad rap for a problem that it inherited from Vermeer. The FrontPage Web Hosting FAQ is commendably direct in saying, "We agree that these are workarounds at best and are currently looking for a better solution to this inconvenience." ■

All Things Evolve





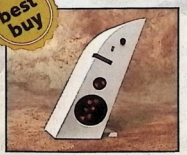


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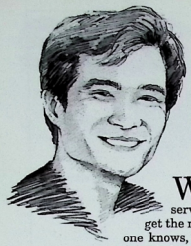
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Wallace Wang is the author of *CompuServe For Dummies*, *Procomm Plus for Dummies* and *Visual Basic for Dummies* (all published by IDG Books) as well as *Surfing The Microsoft Network*, published by Prentice-Hall). He also does stand-up comedy in the San Diego area, and has appeared on A&E's "Evening at the Improv" TV comedy club. He can be reached via e-mail at: 70334.3672 @compuserve.com or bothekat@aol.com or bo_the_cat@msn.com

COMPUSERVE OFFERS MANAGED REMOTE ACCESS SOFTWARE

CompuServe has local access numbers all over the world, so it only makes sense that businesses use this to their advantage. At least that's the idea behind CompuServe's latest agreement to offer Citrix's ***WinFrame/Enterprise*** multi-user application server software over their global network.

If you're working for a company in Florida but that same company's branch office wants to use your program in Anchorage, Alaska, they can access your program over CompuServe's phone network. That way you only need one copy of a program without the headaches of shipping multiple versions of a program all over the world.

CompuServe will provide a high-performance server, pre-configured with WinFrame/Enterprise, at the customer's site. CompuServe manages the server, wide area data network and client-side communications software. The customers remain free to pursue their own business without the nuisance of training people to use CompuServe's services.

BANKING AT AMERICA ONLINE



How does the third largest commercial bank in California plan to stay competitive in an industry that has seen more mergers in the last decade than in the previous century? If you're Union Bank, you decide to offer online banking through the two leaders in the personal computer industry: America Online and Intuit Inc. Dubbed ***Bank@Home for AOL***, Union Bank's home banking will be available on America Online in late August.

"Union Bank is trying to meet the changing needs of our customers, who are demanding more choice, convenience, and flexibility," said Frank Han, vice president of interactive markets for Union Bank.

Bank@Home will allow customers with a PC and modem to monitor their account balances, access transaction history, transfer funds between accounts, and pay bills. Bank@Home for AOL will join Bank@Home for Quicken and Bank@Home for Microsoft Money, Union Bank's two highly successful existing online banking services. (For additional information on Union Bank's existing Bank@Home services, call Union Bank's Direct Banking Center at **(800)796-5656**.)

Just to show you how quickly banks are adopting to online banking, First Chicago NBD Corporation has beaten Union Bank by offering online banking and bill payment services to users of America Online. Customers will have access to checking, savings and money market accounts, lines of credit and credit card accounts. To visit First Chicago through America Online, use the AOL Keyword **First Chicago**.

MICROSOFT PUSHES ISDN ACCESS

In an effort to jump-start the ISDN market since the telephone companies obviously have no clue how to do it, Microsoft is offering ISDN Access through the Microsoft Network (MSN). Microsoft claims that the new dual-channel ISDN access to MSN will improve modem connection speeds up to eight times that of standard 28.8Kbps modem connections.

Microsoft plans to charge a standard monthly price of **$4.95** per month for 90 minutes, with a charge of for every additional hour; an annual price of **$49.95** for 90 minutes per month, plus **$5** for every additional hour; and a frequent-user price of **$19.95** per month for 10 hours, with a **$4** charge for each additional hour.

For more information about ISDN access to MSN, visit MSN's World Wide Web site at **http://www.msn.com/about/isdn/**.

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and small business owners through America Online, the Internet, and a special version of Managing Your Money, a popular money management software program.

In case you can't get to a computer, you can also access your accounts using the bank's Pay by Phone service. By offering so many different ways to access your accounts, Bank of America hopes to give customers maximum choices for using a home banking service. (Then again, what happens if the phones break down?)

Using Bank of America's HomeBanking, customers with a computer and modem can access account information, obtain current balances for their checking, savings, and BankAmericard credit cards, and pay bills online. Customers can also transfer funds between accounts and use the service's built-in e-mail feature to send messages and questions to the bank's HomeBanking customer service representatives who are available 24-hours a day, seven days a week. Inquiries can be sent by e-mail, telephone, or fax.

Bank of America customers can easily download their banking transactions with any personal finance program such as Microsoft Money, Quicken, or Managing Your Money.

The bank is offering an interactive, educational demo disk for consumers who are interested in the home banking service. The free disk is available at Bank of America's California branches (good luck trying to get a teller to understand what you're even talking about), or by calling a toll-free number to request a disk or to enroll in the home banking service. Call **(800)363-BOFA**, or visit them online at **http://www.bankamerica.com** or AOL: **BofA**

READ ADS, WIN A MILLION

Despite the hype about the Internet, most companies are losing money running a web site that everyone loves but nobody wants to pay for. So in the spirit of capitalism, America Online is offering their ***Million Dollar WebCrawl***, a three-month interactive sweepstakes which will run from June 17 through September 16.

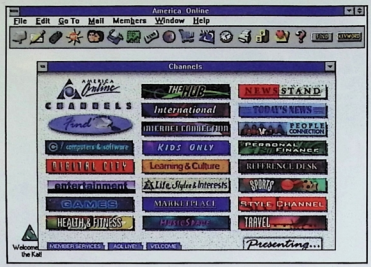
To play, all you have to do is visit The Million Dollar WebCrawl home page at **http://million.dollar.gnn.com**. Then just click on the Million Dollar WebCrawl button to enter. To increase your chances, visit all advertisers' web sites, since each visit counts as an individual entry.

FACE LIFTS FOR AOL AND COMPUSERVE

America Online and CompuServe have updated their communications programs. The new CompuServe 3.0 runs under all flavors of Windows (3.1, 95, and NT). By the time you read this, maybe the Macintosh version will be available and maybe not. Besides trying to offer a more consistent user interface that resembles a web browser, CompuServe 3.0 offers prettier graphics and the Microsoft Internet Explorer. Of course, you can always switch to Netscape's Navigator if you want, but given the added effort, most people will be content to use Microsoft's Internet Explorer instead.

Not to be outdone, America Online has announced an update to their own program dubbed "AOL 3.0 for Windows" or "AOL 3.0 for the Macintosh." Once again, the Macintosh version is "coming soon."

Perhaps the biggest advantage of AOL 3.0 is that you no longer have that annoying dialog box popping up every time you





explore a new area, asking you to wait while it downloads new artwork. AOL 3.0 also acts like a web browser by progressively displaying graphics, letting you at least read any information on the screen without waiting forever until the artwork arrives. While it's doubtful that a pretty user interface will convince mobs of people to sign up, it can make a difference in how people perceive each online service. CompuServe 3.0 is such a drastic change from the previous WinCIM and MacCIM interfaces that experienced users are likely to get confused at first. Even worse, the pretty CompuServe 3.0 still can't mask the inherent ugliness of CompuServe's many news services and forums. In CompuServe's case, beauty is only skin deep.

AOL 3.0 provides flashier graphics and a more consistent user interface that resembles an evolutionary upgrade from earlier versions. Anyone using AOL 2.5 should have no trouble using AOL 3.0. Even America Online's lame web browser seems faster to use. Hopefully America Online will now work on eliminating busy signals, system crashes, and down time so members can use their pretty new programs to access America Online whenever they want. ◆

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THE RESULTS:

These are actual logs taken from a 128K receiving computer.

A portion of a Planet Connect 128K software reception log.

```
5/21/96  0:36 Received.    C:\SAVEALL\PC100K.675
5/21/96  0:37 Received.    C:\SAVEALL\PC100K.676
5/21/96  0:39 Received.    C:\SAVEALL\PC100K.677
5/21/96  0:40 Received.    C:\SAVEALL\PC100K.678
5/21/96  0:41 Received.    C:\SAVEALL\PC100K.679
5/21/96  0:42 Received.    C:\SAVEALL\PC100K.680
5/21/96  0:43 Received.    C:\SAVEALL\PC100K.681
5/21/96  0:44 Received.    C:\SAVEALL\PC100K.682
5/21/96  0:45 Received.    C:\SAVEALL\PC100K.683
5/21/96  0:46 Received.    C:\SAVEALL\PC100K.684
5/21/96  0:46 Received.    C:\SAVEALL\PC100K.685
5/21/96  0:48 Received.    C:\SAVEALL\PC100K.686
5/21/96  0:49 Received.    C:\SAVEALL\PC100K.687
5/21/96  0:51 Received.    C:\SAVEALL\PC100K.688
5/21/96  0:53 Received.    C:\SAVEALL\PC100K.689
5/21/96  0:54 Received.    C:\SAVEALL\PC100K.690
5/21/96  0:55 Received.    C:\SAVEALL\PC100K.691
5/21/96  0:56 Received.    C:\SAVEALL\PC100K.692
```

The files received above are shown below after reception.

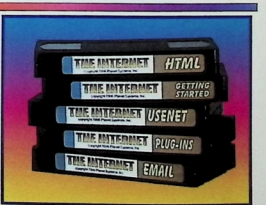
```
PC100K  675   981867 05-20-96   8:01p
PC100K  676   406475 05-20-96   8:01p
PC100K  677  1605302 05-20-96   8:01p
PC100K  678   998286 05-20-96   8:01p
PC100K  679   969215 05-20-96   8:01p
PC100K  680   843040 05-20-96   8:02p
PC100K  681   519203 05-20-96   8:02p
PC100K  682   469926 05-20-96   8:02p
PC100K  685   356812 05-20-96   8:03p
PC100K  686  1062919 05-20-96   8:03p
PC100K  687   840667 05-20-96   8:03p
PC100K  688  1477211 05-20-96   8:04p
PC100K  689  1530121 05-20-96   8:04p
PC100K  690   547927 05-20-96   8:05p
PC100K  683  1116040 05-20-96   8:03p
PC100K  684   574824 05-20-96   8:03p
PC100K  691   972213 05-20-96   8:05p
PC100K  692   571081 05-20-96   8:05p
      21 file(s)  15843129 bytes
                  168239104 bytes free
```

20 minutes to receive 15,843,129 bytes equals 792,156 bytes / minute,

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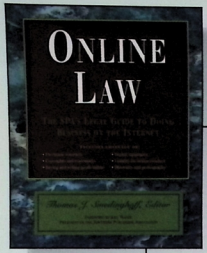
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LANAL, which stands for "I am not a lawyer," is a common disclaimer used on the Net after commenting on some aspect of the law. Armchair and licensed lawyers will be elated with the release of this definitive, well-researched, up-to-date and comprehensive volume on U.S. laws as they apply to cyberspace. We are very impressed with the level of detail, literacy, and professionalism of this work. It's a type of reference work that people will wonder how they did without. In this era of increasing regulation and litigation associated with cyberspace, it couldn't have been released at a better time.

Smedinghoff and the nine co-authors have excellent credentials. Smedinghoff has also written ***The Software Publishers Association Legal Guide to Multimedia*** (Addison-Wesley, 1994). Most of the co-authors are practicing lawyers, members of distinguished professional organizations, and authors of other books; each has written several chapters on their specialties for this book.

The organization of material is outstanding. The table of contents is painstakingly detailed, providing easy access to esoteric subjects. We couldn't find a significant aspect of cyberspace that was not covered in clear and concise detail. Every realm, including emerging ones, is represented, including: e-mail privacy, electronic publishing and distribution, advertising, buying and selling, information security (signatures, confidentiality, repudiation), digital signatures and their legal status, steganography, electronic record keeping, online contracts, trade secrets, nondisclosure agreements, trademarks, domain name rights, patents (application, infringement, enforcement), publicity, privacy rights, licensing, role of the First Amendment, sexually explicit materials, defamation, jurisdiction, online commerce taxation, export controls, workplace e-mail, unfair competition and deceptive trade practices, service agreements, liability for others, criminal conduct and more. An appendix on cryptography nicely rounds out the book.

The book will be particularly useful for businesses engaged in online commerce and their attorneys, but anyone with a interest in the legal issues associated with cyberspace will treasure this tome. Particularly impressive is how up-to-date the material is: in places it cites several cases from 1995 including the Scientologists vs. Netcom case, some of the bulletin board seizure cases, etc. Extensive quoting of existing legal decisions and copious footnotes add formidable depth to the book. The interpretation of the law relative to cyberspace is still an evolving gray area with few precedent-setting court cases. However, the authors have researched and included virtually every relevant court decision. They also extrapolate many classic legal cases to give reasonable interpretations about their application to cyberspace.



Designing for the Web: Getting Started in a New Medium
By Jennifer Niederst with Edie Freedman
1996, O'Reilly & Associates, Inc.
165 pages, **$24.95**
ISBN #1-56592-165-8
http://www.ora.com
(800)889-8969

The unusual elongated shape of this book, glossy pages, lightweight length (165 pages), and somewhat artsy presentation suggest it be reviewed as the first coffee-table web book — something one does not necessarily buy to use but to show off to others. This is not your typical O'Reilly computer book with an engraving of an animal on the cover; it clearly represents a significant and somewhat daring departure from their trademark formula. Niederst has an unrivaled

resume even by jaded cyberspace standards, being the original pioneering creative designer behind O'Reilly's successful ***Global Network Navigator*** web magazine. Her real-world, up-from-the-trenches experience is unparalleled as well, and the tips that fill her book remind one of the saying, "Good judgment comes from experience, and experience comes from bad judgment." She has a finely-honed intuitive aesthetic sense that is successfully conveyed.

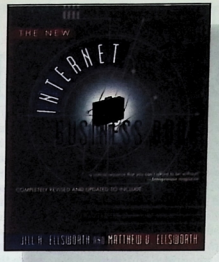
Niederst particularly shines in several areas. She effectively teaches the many design tricks that help make a Web site accessible and attractive to the widest range of Web browsers. Her coverage of graphic image issues such as resolution, transparency, compression, interlacing, backgrounds, etc., is the strongest aspect of the book. She also reveals how to use several page design packages like Adobe Photoshop and Freehand or Illustrator, to maximum effect. She has an eclectic approach and specifically shuns the "one-package-fits-all" approach to web design.

The chapters are: How the Web Works, More about Browsers, Assembling a Web Page, Creating Hypertext Links, New Considerations for a New Medium, What you Need to Know about Web Graphics, Creating Graphics, Creating Better Graphics, Transparency and Interlacing, Creating Imagemaps, A Designer's Guide to HTML, More Web Tricks, and From Web Page to Web Site. The aesthetic refinement of her layout is artistic and attractive, more suitable to the creative artist audience she addresses than to nut-and-bolts programmers.

This book is intended for non-technical readers. The subject matter is very well presented, but its short length and emphasis on the basics will not take one to the expert level.

The New Internet Business Book
By Jill H. Ellsworth and
Mathew V. Ellsworth
1996, John Wiley & Sons, Inc.
499 pages, **$24.95**
ISBN #0-471-14160-7
http://www.wiley.com/compbooks

There are some book categories that tend to be overburdened by too many titles, and "Business on the Internet" has probably reached that point awhile ago. In crowded markets like this, the book authors tend to mark off checklists of items to cover, new editions cover those they previously missed, and readers can be fairly well assured that all the books have virtually identical check-



lists of topics. It becomes a rather difficult decision between the titles even when each is immediately available to browse and compare, and perhaps it doesn't even matter that much, because each will have the key information that readers are after.

There are other books that better cover the topics of Internet Marketing and Web Marketing. What this book can give you is an idea of all the different Internet aspects relevant to business without focusing on any of them in particular. Much of the contents of this book seem to overlap entirely with "beginning Internet" books: What is the Internet, Overview of the World Wide Web, Internet Access Types and Providers, Web Browser Basics. The reference will be good for anyone in business who is unfamiliar with the Internet and needs an overview of what it entails, such as search engines, FTP, discussion lists, etc. Those who are already familiar with Internet basics should consult other books that focus more on their line of interest.

Chapters that are business specific include "Why Businesses are Using the Internet," "Security, Authentication, and Online Transactions," "Techniques for Creating a Business Presence on the Internet," "Using the Web for Doing Business Online," "Business and Professional Resources on the Internet." A chapter on Online Resources, Databases, and Libraries is not so business-specific but is comprehensive.

The Wiley publishers have multiple computer books out and all are reasonable values, but none are quite as memorable or distinguished as other series such as the "Unleashed" titles. They are consistent in revising their books to keep up to date with the changing technology (another recent title revision was Finding it On the Internet by Gilster), but possibly as much from competition from other books. They seem to be lacking the equivalent sexiness of a "killer app" so far. For this reason they tend to make more sense in an office environment than for personal ownership. The New Internet Business Book and their other titles are books your boss would be proud of. ◆

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In the first line of the message, put only:
get bulkemail
For a prompt e-mail reply put nothing else in the message and use all lower case letters.



CDA COURT FORBIDS INTERNET CENSORSHIP

The author of this article is a corporate attorney based in New York, and due to employment policies is not at liberty to reveal her identity.

"Just as the strength of the Internet is chaos, so the strength of our liberty depends upon the chaos and cacophony of the unfettered speech the First Amendment protects...Congress may not regulate indecency on the Internet at all." - Judge Stewart Dalzell, United States Court of Appeals for the Third Circuit

I never thought I'd be grateful for the *Thomas* decision (*United States v. Thomas*, 74 F.3d 701 (6th Cir. 1995), in which the DOJ successfully convicted the owner/operators of the "Amateur Action" computer bulletin board under the obscenity laws) but there it is, smack dab in the face of the CDA: if you don't need the CDA to put away Thomas — and quite obviously the government didn't — then what on earth is the CDA for, other than to criminalize free speech and chill free expression on the Net?

Not a lot, as a three-judge panel in Philadelphia recently ruled in ACLU v. Reno. The full 175-page text of the decision is available at many Web sites, including

The Electronic Frontier Foundation :
http://www.eff.org/blueribbon.html

The Center for Democracy and Technology
http://www.cdt.org/ciec

The American Civil Liberties Union
http://www.aclu.org

Voters Telecomm Watch
http://www.vtw.org/speech

As Mike Godwin of the EFF noted, ACLU v. Reno rapidly became one of the most widely instantly distributed decisions in the history of the Federal courts, because the court quite considerately distributed copies on disc as well as on paper on the morning that the decision was released. The complete decision is well worth downloading, as it was clearly written for public consumption and is quite readable. The following is obviously a very brief and sketchy summary of the decision.

The first part of the decision consists of findings of fact, apparently stipulated to by the parties (though it's a bit hard to see how the government could have stipulated to some of the findings) in which the Internet, the World Wide Web, dial-up vs. dedicated communications, online services, e-mail, listservs, and even the ARPANET are described in detail.

This extensive description of the Net is probably a tactical device: when the lower court finds it's a fact that "the Internet is therefore a unique and wholly new medium of worldwide human communication," (finding No. 81) and that "communications over the Internet do not "invade" an individual's home. . . Users seldom encounter content "by accident"" (finding No. 88), there's going to be less that the Supreme Court can do to jam the Internet into the mold poured for broadcast than if the court reached these as legal conclusions. However, since the Supreme Court has reserved to itself the power to find the facts in a First Amendment case de novo, there is always a possibility that the Supreme Court will throw out the facts as found by the lower court and determine new facts pertaining to the Internet.

In the actual decision, the court (speaking with one voice) simply states that the "indecency" and the "obscenity" provisions of the CDA are unconstitutional on their face. Therefore, the court granted an injunction which prevents the government from enforcing the CDA, a continuation of the temporary restraining order against enforcement of the CDA sought by the ACLU and granted within days of the law's enactment.

Each of the judges then writes separately. Sloviter gives as classic a demonstration of First Amendment reasoning as you could hope for, Buckwalter recants his initial temporary restraining order (upon the filing of the suit, he granted a TRO apparently on the grounds that the "indecency" provision was likely to be unconstitutional for vagueness) and Dalzell argues — magnificently — that the Internet finally realizes the promise of the First Amendment: here at least is a true medium of expression, unhindered by spectrum scarcity, market failure, or any given monopoly of newspaper chains, entitled therefore not just to the freedom of print (currently the most free means of expression) but to greater freedom still.

This is the heart of the decision. In the hierarchy of the First Amendment, where speech is given greater or lesser First Amendment protection based on the medium of transmission, this opinion has assigned the Internet to a newly-created platinum rank.

The first thing that hits you in reading Sloviter's careful parsing of the law is what a very messy statute the CDA is. It criminalizes indecent and patently offensive conduct in two separate places (what would be 47 U.S.C. Section 223(a) forbids anyone from "knowingly" transmitting any communication "which is obscene or indecent, knowing that the recipient of the communication is under 18 years of age," and what would be 47 U.S.C. 223(d)

makes it a crime to send a communication which is "patently offensive as measured by contemporary community standards," clearly taken from *FCC v. Pacifica Foundation*, 438 U.S. 726 (1978) a case in which the Supreme Court found that the FCC could impose limits on broadcast based on what was patently offensive to the particular community).

The second formulation might indicate that here Congress is trying to enforce the Pacifica standards on the Net (at least that is what the government argued), but not both; and if the purpose of law was to create a uniform federal standard for the Net, why have the reference point be "contemporary community standards" in the first place?

Finally, it should be noted that the Department of Justice has promised that it will not even try to enforce the provision which would prohibit transmission of information about abortion. It takes a messy statute indeed for its own defenders to give up on part of it even before battle is joined.

Because the CDA is a government-imposed content-based restraint upon adult speech, it is subject to strict scrutiny, which means that the government must show that the legal restrictions in the CDA are "narrowly tailored" *and* serve a government interest sufficiently "compelling" to enable the statute to survive such strict constitutional scrutiny. Sloviter does an excellent job of demonstrating that the CDA is anything but narrowly tailored and that it probably serves no "compelling interest" of the government as well (the statute must pass both parts of the test; once the court has determined that it is too broad, there is no need to demonstrate the extent of the government's interest).

Buckwalter's concurrence is a little more problematic, for not only does he insinuate that the only problem here is bad drafting ("I specially do not find that any and all statutory regulation of [First Amendment] protected speech on the Internet could not survive constitutional scrutiny"), he then devotes a good deal of his portion of the opinion recanting his TRO. Since he is too good a judge not to notice that the "indecency" and "patently offensive" sections are not parallel and that only the second can pick up *Pacifica*, the only explanation for his mysterious hedging on the topic of vagueness is the pending Supreme Court decision in *Alliance of Community Standards v FCC*, 56 F. 3d 105 (D.C. Cir. 1995). In that case, the Supreme Court will consider the FCC's power to authorize private cable operators to refuse to carry "indecent" (as defined in FCC cable regulations) programming on leased access channels.

But "indecency" in the CDA refers no more to the FCC cable regulation definition of "indecency" than it does to the definition given in 18 U.S.C. 1461. If the drafters of the CDA had wanted to reference the FCC cable regulation definition, they should have done so (and in the next go-round probably will). Buckwalter simply concludes that whatever "indecent" means in the context of the CDA, it is clearly not confined to a specific medium, and this alone makes it unlike FCC regulations, which (naturally) are confined to the particular media over which the FCC has administrative power. His mind is in the right place, but he's too afraid of the Supreme Court Justices.

The crowning glory of this opinion is Dalzell's concurrence, in which he hammers in the key point: The Internet is not merely different from broadcast. It is not enough to say that *Pacifica* and the FCC cable regulations do not apply. It is not even enough to say in a nationwide network what will play off-Broadway will be shocking in Peoria, and that a "community standards" test is therefore the wrong idea. The Internet is a new medium altogether, and the facts about it recognized by the court "lead to the conclusion that Congress may not regulate indecency on the Interest at all." The Internet is entitled to more protection than the press. It finally allows each citizen their full First Amendment rights to freedom of expression, free from market-based barriers to entry, spectrum scarcity, or any other hurdles. It is world-wide conversation, which the government is not at liberty to break up.

This is the best view of the Internet that libertarians can hope for, and given the facts found by the lower court, the Supreme Court will have to at least take it into account.

The core problem, of course, is that there are different First Amendment "regimes" for the different media in the first place. This is due to several factors, most related to the social climate in which the technologies evolved. The law for radio was laid down in the 1934, broadcast television came in during the 50s, cable regulations were promulgated in the early 60s. None of these eras is noted for a political climate especially kind to free speech. The laws passed reflected the sentiments of the time, and the inconveniences imposed by the Constitution upon the political currents of the day were glossed over through the device of creating different standards for the communications spread through each new technological advance.

The court in Philadelphia has done the best possible thing that could be done with such a system: looked at the ordinary means of communicating over the Internet, judged that the most useful purpose for the technological hierarchy of First Amendment values from a Constitutional point of view was to permit as much speech as possible (limited bandwidth justifies impositions of federal controls, etc.) and concluded that since the Internet permitted *more* speech than print, and *much more* than radio, broadcast television and cable, it should be entitled to much more First Amendment protection. Crimes committed through modems could still be punished by existing laws (look at the *Thomas* case) leaving true freedom of communication untouched.

A marvelous decision, all around, but remember the war is not over yet. The CDA is an unconstitutional mess, but the next statute introduced into the houses of Congress might well be a very cleverly drafted, intelligently worded unconstitutional statute which is not a mess at all, and then the defeat of the CDA will help only a little. The likeliest next battleground is the Supreme Court, if the government chooses to appeal (the statute gives them an appeal as of right). If the government chooses not to appeal, this will undoubtedly be because a new CDA, drafted with this opinion in mind, will be in the works. Stay turned, because the struggle for control over the Internet is not yet finished, and may never be.

(Editor's note:

The Department of Justice filed a notice of appeal with the U.S. Supreme Court on July 2, the last day on which such an appeal could be filed. DOJ spokespersons would not comment on their motivations for the appeal. The DOJ has sixty days in which to prepare its case for a hearing before the Supreme Court.)







THIS MONTH'S LIST

by David Hakala

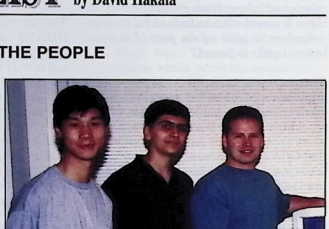
THE INTERNET LINK EXCHANGE: FREE ADS FOR THE PEOPLE, BY THE PEOPLE

Tony Hsieh and Sajay Madan graduated from Harvard in June, 1995. Both were honors students in computer science, and had no problem landing good jobs with Oracle Corp. upon graduation. However, being children of the Internet - from one of the most liberal academic environments, to boot - they soon found commercial software development a bit too pedestrian and usurious for their tastes. So they did what many X Generationers do these days - they started their own Internet-based company, in February, 1996.

Hsieh and Madan had some business management experience — they'd run a just-in-time pizza joint for the 300 or so students in their dormitory. Of course, they'd played with their personal Web pages too, so it was a short leap of faith into the Web design business. Hsieh says that ***Internet Marketing Solutions*** (**http://www.netonline.com/ims**) "got a good reception" from the San Mateo, California, Chamber of Commerce; the chamber was IMS' first client and is now its staunchest proponent. Dozens of other Bay Area businesses, from hotels to pizza parlors, hang their home pages at IMS' site.

But the youthful infopreneurs' real fame stems from ***The Internet Link Exchange*** (**http://www.linkexchange.com**), an ostensibly altruistic venture spawned "in the true spirit of the Internet," as Hsieh put it – meaning a voluntary, cooperative and consciously non-profit enterprise.

Basically, the Link Exchange formalizes the widespread practice of reciprocal linking; I give you a link on my Web site and you give me one on yours. It's entirely possible to amass thousands of daily hits from a network of such links to your Web site, without spending a dime for advertising. The Link Exchange systematically extends this potential and simplifies the mechanics of reciprocal linking.



Tony Hsieh, Sanjay Madan and Aaron Lamb

Better still, you can get a cool, eye-catching GIF banner ad on thousands of other sites – for free!

All you need do is register your site at **http://www.linkexchange.com/join.html** and then create a GIF banner ad that meets their standard specs. If you don't have the talent of software to create a banner ad, members of the Link Exchange kindly volunteer to create one for you. Gee, what a swell bunch of people!

Then copy a few lines of HTML code, modify them for your site, and plug the code into your own page(s). The

David Hakala first appeared in ***Boardwatch*** in March, 1989. From May of 1991 until he assumed the position of Editor at Fault at ***BW*** in April, 1995, David wrote for a number of trade and mainstream journals, co-authored the book ***Hot Links*** with Mark Eppley, CEO of Traveling Software, and penned his own book, ***Modems Made Easy***, which entered its second edition in March, 1995. In his spare time, David enjoys science fiction, billiards, country-western music and catching crayfish with his son, Tony Eric. David can be reached at **mailto:david.hakala@boardwatch.com** or at **(303)973-6038**.

code contains a hypertext reference to an ever-changing banner ad at the Link Exchange site. A new ad is displayed on your page every time someone loads or reloads it.

Each time you display an ad for another member, you earn ½ of a credit. Your own banner ad is displayed on someone's page each time you earn a full credit.

Apparently the system works As of early July, over 3,000 Web sites representing over 25,000 pages were displaying each others' banner ads. Hsieh reports the network displays over 16 million banner ads per month now. Over the last two weeks of June, daily ad displays skyrocketed from 400,000 to over 540,000. This thing is growing faster than Craig Shergold's mailbag. (See **http://www.urbanlegends.com/classic/craig.shergold/** if you're the only Internaut who's never heard of Craig.)

This enormous audience has attracted some cash-paying sponsors, whose banner ads receive up to 25% of all exposures on the network. A page at **http://www.linkexchange.com/friends.html** provides links to "Friends of the Link Exchange," voluntary donors who receive 2,000 bonus ad exposures for every $25 they contribute to the network's upkeep.

Building a virtual community is a social science that few sysops ever understand, let alone master. A "community" is a group of people who not only share common interests but are motivated to discuss them with each other. There is no community of Denver Broncos football fans until the fans get together and talk about the team. The primary value of a community to its members lies not in what is said about its common interests (the team) but in the information members exchange about each other: their resources, problems and solutions. Very little of the conversation in a sports bar is about sports; instead, much personal and commercial business is transacted once the "How about that game last night?" introductions are over.

The proprietors of the Internet Link Exchange have an exquisite sense of community and their role as its hosts and civic leaders. They operate a very active newsgroup at **news://news.linkexchange.com/le.discuss** where members and passersby debate the finer points of web marketing, ad design and other lively topics. Even better, the have the subject of this month's list:

THIS MONTH'S LIST: TOP 40 BANNER ADS IN THE INTERNET LINK EXCHANGE

With the administrative help of Link Exchange member Jason Allen, Hsieh and Madan run a weekly contest in which voters select the ten best banner ads from a field of about 100. The winners receive 300 "bonus points" each - good for 300 exposures of their own banner ads on Internet Link Exchange members' pages. The contest includes several vital elements of community: something to gain by being a member, something to cheer for and an opportunity to voice your opinion.

It's also a cunning way for the sponsors to get great ad designs: every ad submitted to the contest must advertise the Internet Link Exchange! ◆

TOP 40 BANNER ADS

INTERNET LINK EXCHANGE

Cosmin's WWW.Home Page	http://www.accent.net/cosmint/homepage.html
Creatwal Software	http://www.infi.net/~creatwal/
Web Pioneer WebSite & Logo Design	http://webpioneer.on.ca
Whimsical Wonderland	http://www.mcs.net/~scottm/Index.html
Bev's Home Page	http://digital.net/~bev
A New Image Promotions	http://www.inch.com/~toosexy
NAILS LINKS	http://www.nfinity.com/~mbrink/
Dayton CyberHood Community Jrnl	http://www.dayton.net/cyberhood
The Spectre Server	http://www.armory.com/~spectre/
Genius Geeks	http://www.uwdo.com/genius/geek.html
Art DuJour Free Web Graphics	http://members.gnn.com/cuda/art/artist/artpages/cuda/page1.htm
International Underground DataPage	http://homer.bus.miami.edu/~pheltzer/dataintro.html
Hog Leg Comics Company	http://www.nashville.net/~cdonham
Graphics Extravaganza	http://www.isu.edu/~kittryan
BIIITV	http://ourworld.compuserve.com/homepages/billtv
Jon Cooper's official home page	http://www.netshop.net/~cooperd/
Artist Access	http://www.artistaccess.com
The Music Helpdesk	http://www.euronet.nl/users/mkok/helpdesk.htm
Sword of the Spirit Screen Saver	http://www.infi.net/~creatwal/prodswrd.htm
Scott's Realm of Chaos	http://www.ug.cs.su.oz.au/~scollis
The Smashing Pumpkins Source	http://cs.gfc.edu/~snickeso/sp/
Justin's Pad	http://pages.prodigy.com/EFTE98D
WWW Links, etc.	http://www.wp.com/76712/home.html
Route 95	http://www.scott.net/~gtaylor/route95/
Elton's Realm	http://www.geocities.com/SiliconValley/7702/
VIRTUAL INFINITY	http://www.rit.edu/~djs2682/
HOBBY for ALL	http://sunnit.ifmo.ru/index.htm
Nicole Eggert's Home Page	http://www.geocities.com/Hollywood/2613/nicole.html
Riot Mag	http://www.riotiym.com/
Belle Meade Prod. - Crafts/Melina Inman	http://zim.com/bmp/bmc_home.html-ssi
Main St. Graphics	http://www.lmainst.com/street
VancouverWeb	http://chaos.hdmdigital.com/doug
Planet Soccer	http://web-usa.com/soccer/
Charlie Brown Records	http://www.il.ft.hse.nl/~stefand/
Florida Internet Yellow Pages	http://www.fladvyp.com
The Web Starts Here	http://www.microsys.net/personal/cbenson/index.htm
Digital Logic Web Design	http://www.primenet.com/~karlm
CyBerDIVA On-Line Digital Magazine	http://members.aol.com/divamag/cybdiva.html
UP-N-ATEM	http://www.oznet.com/upnatem
Ventura Soup	http://www.venturasoup.com

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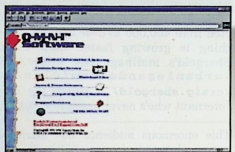
http://www.apdi.net

Application Programming and Development: APDI is the nation's premier online service bureau, with over 500 simultaneous connect lines. Provides customized systems for corporate and professional organizations nationwide.



http://www.planetc.com

Planet Systems, Inc: Satellite Distribution of Information Products for Online Services, Skylink, Planet Connect, and Planet Connect TV. Includes UPI News and Pictures, Stock Market and Financial Data, Accu-Weather.



http://www.o-m-n-i.com

O-M-N-I Internet/BBS Software for Windows chosen as "Best New Product" at Intermedia/Internet Asia '96 show with new advanced Web and BBS technology



http://www.murkworks.com

MurkWorks, Inc Developers of BBSNet, IPDoor, and WorldSock. Powerful Internet access add-ons for most popular BBSs. Provide ANSI & RIP 'net clients, SLIP & PPP and painless Winsock access.



http://www.cyclades.com

Cyclades Corporation Designs, develops and markets high performance connectivity products such as multiport serial cards. Operating system supoorted: BSD/OS, Windows NT, Linux, SLO, Free BSD and many more.



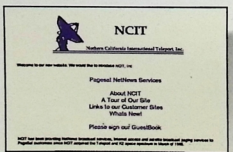
http://www.visone.com

Visone Corvette, USA: Your source for Corvette Sales, Financing and Leasing. Learn about Vettes, check our inventory, get online credit approval, request a FREE catalog, and take a fun quiz.



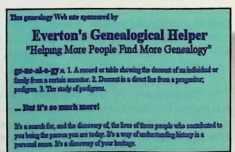
http://www.intercom.com

Intercom Online's Wall Street Web Farm puts your dedicated server on our hi speed (10 Mb) Internet connection. While your office may be in the boonies, your web server can be on the backbone for less than the cost of a T-1! Also, T-1, ISDN in NYC



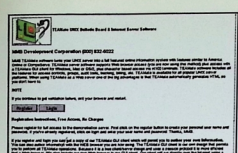
http://www.ncit.net

Northern California International Teleport: Providers of Internet Access, Fidonet, E-Mail, high speed (115KBPS) satellite delivered NetNews and broadcast paging services to PageSat customers.



http://www.everton.com

"Everton's Genealogical Helper," the largest genealogical magazine in the world. Provides links to the best genealogical resources on the WWW, links to an online genealogical magazine and On-Line Search with over 70 million ancestor names.



http://mmb.com

MMB Development: Developer of MMB TEAMate UNIX WEB BBS. TEAMate software now includes an integral WWW browser allowing you to mix HTML and other data within your TEAMate Bulletin Board.



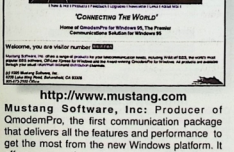
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COMTROL: A worldwide supplier of connectivity products including RocketPort and Hostess controllers for ISA and MicroChannel compatible microcomputers. Developer toolkits are also available for integration into Windows, DOS, and UNIX applications.



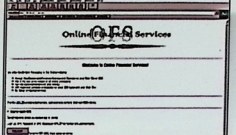
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Market Plaza: We specialize in state-of-art web development and innovative on-line shopping including Mail Order Wizard, Tracy Otsuka, Bridge Kitchenware, Ever's Toy Store, and Cats, Cats & More Cats



http://www.mustang.com

Mustang Software, Inc: Producer of QmodemPro, the first communication package that delivers all the features and performance to get the most from the new Windows platform. It offers communication and Internet capabilities beyond the standard terminal software.



http://38.244.81.1/ofs.htm

Online Financial Services: Credit Card Processing for ISP's and BBSes, No Merchant Account Needed! No Application Fee, Low Rates, One Week Turnaround on your Money. OFS Approved software available for all BBS Platforms.



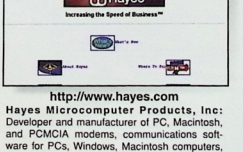
http://www.isdn.nortel.net

Northern Telecom's Digital Velocity ISDN BBS Website: Comprehensive information on ISDN communications. Official ISDN BBS list. Includes information on services, providers, and equipment to utilize ISDN. Website offers on-line forums, direct telnet to BBS, and mailing lists subscriptions for the latest in ISDN technology information



http://www.gcomm.com

Galacticomm, Inc: Since 1985, our corporate mission has been: "To do really cool things in the field of computerized communications and make a buck at it." When you see what we've packed into Worldgroup, we think you'll agree. Download Worldgroup Client software from our site.



http://www.hayes.com

Hayes Microcomputer Products, Inc: Developer and manufacturer of PC, Macintosh, and PCMCIA modems, communications software for PCs, Windows, Macintosh computers, and high-speed serial ports to protect and enhance data transmissions.



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eSoft, Inc: We got our start 14 years ago with TBBS. Now the The Internet Protocol Adapter, or IPAD, is our primary product. The IPAD lets you build a full-function Internet presence without specialized expertise.



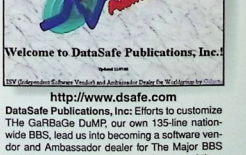
http://www.logicom.com

Logicom, Inc: Your Worldgroup Source and Galacticomm's largest Ambassador Reseller. Check our site for information on the Total Internet Turnkey System, that combines a Web Server, Independent Online Service, Internet Server, and Fax Broadcast Server all in one.



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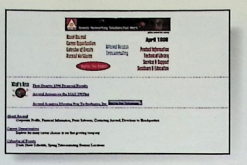
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DataSafe Publications, Inc: Efforts to customize THe GaRBaGe DuMP, our own 135-line nationwide BBS, lead us into becoming a software vendor and Ambassador dealer for The Major BBS and Worldgroup. We write our software and thoroughly test it all on our live system.



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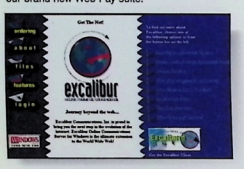
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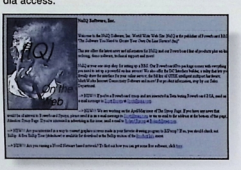
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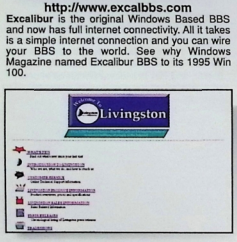
http://www.nuiq.com

NuiQ Software, Inc.: Makers of "Software to Create your own online service(tm)," NuiQ offers the Powerboard BBS software package. If you're looking for a complete package you can get up and running fast, check out our software.



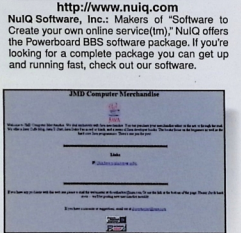
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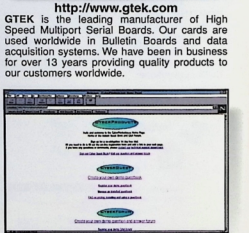
http://www.livingston.com

Livingston: Over 1,500 Internet Service Providers rely on Livingston products to connect millions of people to the Internet.



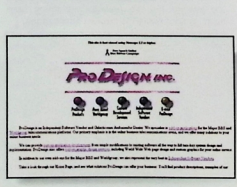
http://www2.connectnet.com/~jmd/index.html

JMD Computer Merchandise: Java Is Hot! We offer great Java logo mechandise. Connect to our website to order Java T-Shirt, Baseball Cap, Coffee Mug as well as many other items. Check us out!



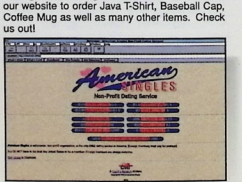
http://www.cyberproducts.com

Cyber Products: Instant Guest Book and Q&A Forum. No complicated CGI programming. Free 14 day trial. Just fill out the on-line registration form and add the link to your web page.



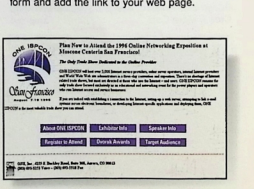
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http://www.as.org

American Singles: American Singles Non-Profit Dating Service, helping people find love since 1978. 30,000+ detailed personal profiles—not personal ads. Join, browse & respond for FREE! Donations appreciated—we operate similar to Shareware.



http://www.ispcon.com

Online Networking Expositions, Inc. (ONE Inc.) Since 1991, has been responsible for all logistics and management of ONE BBSCON. The 1996 convention and trade show has been renamed ONE ISPCON, and will host over 5000 ISP's, Online Service Operators and WWW site administrators. The 1996 show will be held in San Francisco, Aug. 7-10, 1996.



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DVORAK ONLINE

by John C. Dvorak

MAKING MONEY ON THE INTERNET — SOME THOUGHTS

While the complete resolution as to how one makes money on the Web has not been totally resolved, we do know that it's possible, at least in theory, to make money. The recent demise of ***Web Review*** magazine (a web-zine) and the subsequent pronouncement by the ownership that "it's because advertising doesn't work" has done nothing but cloud the waters. In fact many sites have done quite well with advertising. ***Web Review*** simply did not have the right selling infrastructure.

It's obvious you can make money if you simply sell something direct to the consumer (it's believed that ***Insight***, the direct seller, does $1 million a month from Web direct sales). The more difficult question is how to generate income from a site that specializes in information. There are five ways to generate income which I'll discuss. The five are: 1) sell ad space; 2) micropayments (pay per view); 3) subscription/membership (high fee or low fee models); 4) begging for voluntary contributions; 5) various hybrids. Each methodology has advantages and disadvantages in various contexts.

The ad model is the one which I believe has the most potential in the long term for generating a lot of income for the right sites. This will probably narrow down to online newspapers, guides, reviews and webzines. I also believe that non-fiction special interest publishing (a. k. a. computer books) would do well in this category although the difference between a book and a magazine on the web can easily get blurred.

Anyway, there is no reason to suspect that the Web will not become a major opportunity for advertising. Most observers believe it will capture 10 percent of the advertising revenue by 2000 which amounts to no less than $10 billion for the web.

The problem is that advertising buying and selling requires a sales infrastructure many small sites cannot develop. And, besides that, there are very few sales organizations who have a clue about selling into this market. The so-called "rep" firms who charge typically 25-percent commission off the top tend to be cherry pickers only making the easy sale. To compound matters overall the rates vary enormously with some people selling by banners served, others by hits, others by click-through and others by time on site. It's wide open.

I believe the C|net model developed by ex-Ziffers Lon Otremba and Paul Klein looks the best. Essentially it's a banners-served model running at about a $75 cost per thousand. The key to success, though, is getting people to come to the site. If you're obscure or just have a stuffed bear sitting on a toilet and don't expect more than a few hundred hits a year, advertising will probably not work.

Micropayments or pay per view is an alternative but it has a lot of limitations. First of all there's that darned infrastructure problem again. There is no universal way to make micropayments. I believe that at some point in the future you'll have a smart card reader on your machine that will suck the nickels and dimes off the card, but that's a long way off. For now there will be some sort of credit card system that drains your money in increments much like the way they do it at AOL or CIS where you give them the card info once then watch them suck the money out. I've been back and forth with this notion since it was first popularized and can see it working in certain contexts. First of all the information you are buying must be something you seriously want, such as an important report. I believe a lot of research and "white papers" will be sold this way.

Subscriptions are, I believe, the worst way to generate income. The basic problem is that it is a barrier to entry. It's never easy to go through the rigmarole of the subscription form. Then there is the psychology of a paid subscription. Those sites that charge money for an online equivalent of a print product have to explain exactly why are they charging money when the print product typically makes all its money from advertising and the subscription fee seldom pays for the ink, printing and distribution which accounts for 70-percent of all costs. Those costs are nil on the web, so what's the rationale for a subscription? Users resent these charges.

On the other hand a high ticket item such as a daily legal update or stock tip letter can justify a hefty charge and these sites have done very well. Insofar as newspapers are concerned I believe that with the possible exception of the ***Wall Street Journal***, which is highly specialized and time-sensitive (valuable to receive early online), newspapers cannot compete if they charge for a subscription. The material will always be available someplace else free. Daily general interest news is not that hard to come by.

Voluntary contributions is a concept that has not been much explored. For shareware it works with special products that are used a lot (comm drivers come to mind) and you can assume that for the Web the same

In addition to his weekly syndicated radio call-in show, "Software/Hardtalk," syndicated newspaper columns, magazine writing for ***MacUser***, ***PC Computing***, ***DEC Professional***, ***Information Technology***, and his featured "*Inside Track*" column in ***PC Magazine***, Dvorak is the author of several best-selling books,including ***Dvorak's Inside Track to DOS & PC Performance***, ***Dvorak's Guide to PC Telecommunications***, and ***Dvorak's Inside Track to the Mac***. *John can be reached at mailto: dvorak@aol.com*

will hold true. I have no idea what kind of informational site might generate income using this trick, but I'm sure something will. Look for some smart cookies playing the religion game such as Pat Robertson's CBN (700 Club) to make a breakthrough one of these days with a begging-for-money site that might actually work.

The model most likely to work best is probably the hybrid model where a combination of two or more income streams are created to maximize the capabilities of the web as an information source and commercial hub. This became obvious to me when I hit the free part of the ***San Jose Mercury Web*** and wanted more information about a topic. The additional material was not available to non-subscribers. While the material wasn't so important that I was going to subscribe just to get one article (although the Merc is an outstanding online pub), I concluded that I would have no difficulty succumbing to a pay-per-view fee. I might even pay a dollar.

The perfect combination to me seems to be a paid advertising site where some low-throughput obscure material exists and can be sold individually to interested parties. Research material that has intrinsic value seems to be the ticket insofar as having something to sell.

Over the next year or two the models for income generation will evolve and form a base from which new exploration will begin. Until then, experiment! ◆

Dvorak's Recipe Nook



Vegetarian Fare from The West Indies

I've always believed that the best cooks incorporate as much foreign cookery into their cuisine as possible. After all everything is derivative. From the West Indies comes this dish that was given to me by a woman who was our housekeeper for a while. It turns out she should have been the cook! This is one of those meatless dishes people hanker for every so often.

MARIE'S SPECIAL COCONUT STEW

2 cups cooked baby lima beans
1 medium sweet potato diced (about 1 cup)
2 1/2 cups chopped spinach
1 cup diced acorn squash
1 medium zucchini, sliced
1 clove of garlic, chopped
2 green onions, chopped
1 tsp. fresh parsley
1/2 tsp. ground pepper
1/2 tsp. thyme
1 tsp. butter
1/2 of a fresh coconut, grated
2 tbs. water
3 1/2 tsp. salt
1 tsp. lemon juice

Melt butter in kettle. Sauté green onions. Add spices. Add all other ingredients except coconut. Sauté with 2 tbs. water for 15 minutes. Wash grated coconut in 3 1/2 cups water (save water), squeeze juice from wet coconut through strainer. Add coconut water to vegetables. Simmer for 20 minutes on medium heat. Serve hot.

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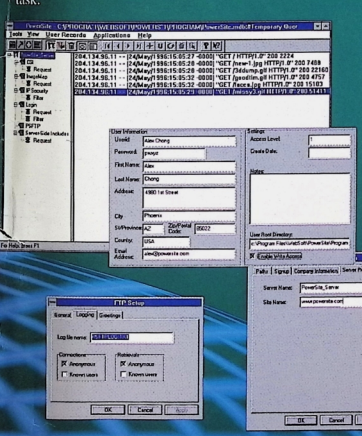
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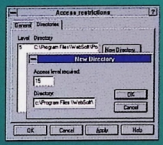
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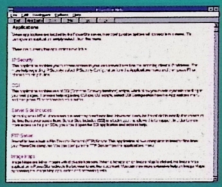
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